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The last Report of the United States Department of Agriculture, Splendidly Illustrated With Maps and Colored Plates.

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The folded maps and charts show the production of wheat, corn and cotton for 10 years, and the results of artesian irrigation. The best idea of the scope of this magnificent work may be gathered from the following list of the illustrations:

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THE AMERICAN FARMER.

Established 1819. WASHINGTON, D. C., MARCH 1, 1892. Vol. LXXIII. New Series No. 5.

GEN. JERE M. RUSK.

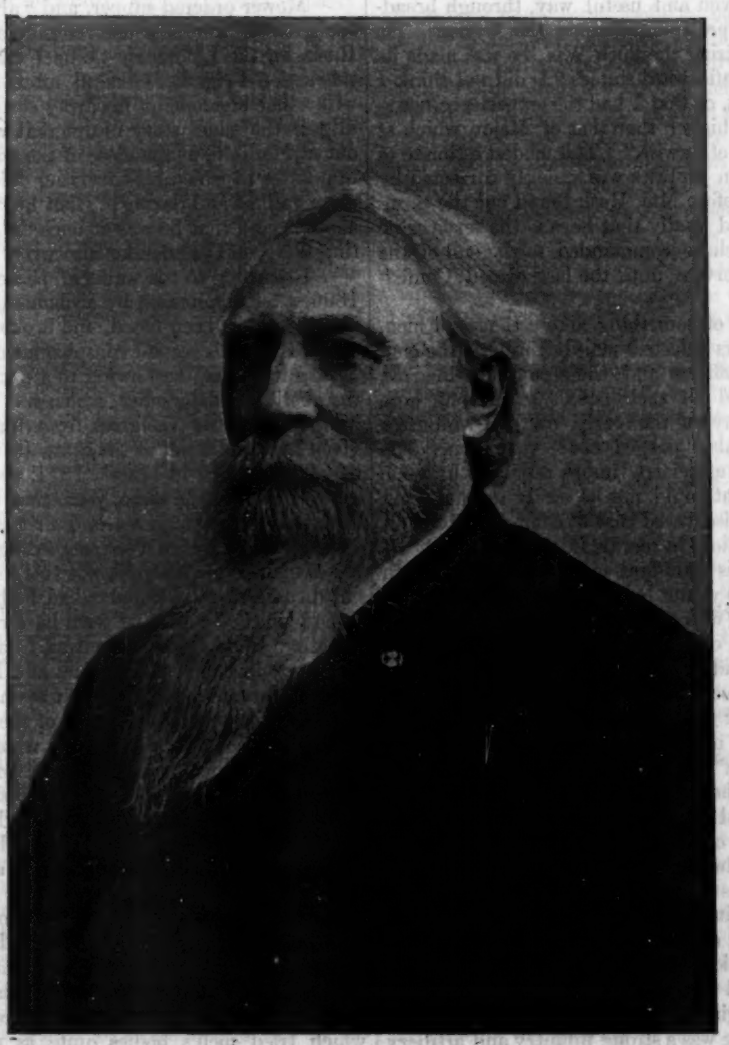
Secretary of the Department of Agriculture.

A Life of Varied and Extended Usefulness—Stage Driver, Farmer, Soldier, and Member of the Cabinet.

BY CAPT. ALMONT BARNES.

PUBLIC men have their portraits taken more frequently than the people suppose—not so often, however, by the camera or the brush as by methods known to artists of the press. Some of these artists, like George Alfred Townsend, are such in the truest sense, and produce pictures from real life which instruct and encourage. But even the snap shots of the daily press kodac style often answer the legitimate purposes of the hour. With all these portrait trappers active through the land, few public or prominent characters escape presentation; and worthy indeed must the man be who is thus held up to view frequently, and almost continuously in certain instances, without the exhibition of a serious flaw.

To say that the present Secretary of Agriculture, Hon. Jeremiah McLain Rusk, is perfect would either provoke his laughter or his indignation, according to the manner and intent of the statement. But to say that he has been limned often by artists and amateurs of the press, and held up continuously to public view for a considerable period, both in this way and by his public acts, without the exhibition of a serious flaw, is simply a recognition in few words of the current facts to which he has held or still holds a public relation, and of their logic. The testimony of friends and supporters is confirmed by that of opponents with singular unanimity in this instance, and together they present unimpeachable proof of rectitude of purpose and wisdom of action which are the parents of perfect and often of high records. Taking into consideration the difficulty of according even merited commendation to political opponents in this quadrennially and biennially bedeviled country, where politics even affects the yield and value of the crops, the friendliness of all parties in his own State to Mr. Rusk, as expressed all along through his public career, is a singular tribute to his value as an official, citizen, and man. The usual Hyde-and-Jekyl aspects incident to politics is lacking here, and in the language of the farmer "Uncle Jerry" is conceded to go plump 60 pounds to the bushel, stricken measure.



Something like 50 biographies and biographettes unite in asserting that Mr. Rusk was born in Morgan County, Ohio, on the 17th of June, 1830. It is not worth while to assail this seemingly concerted agreement. If, however, "the child is father of the man," it must have been the immediate ancestor of the present city who saw the light first on that day; and it is thus fair to think that, like Topsey, he "grew," as, thanks to the Republic, thousands of sturdy, honest, bright boys are still growing, hardly knowing that or how he grew; only that through not uncommon adversities of young life in new regions things went slowly to the better, helped on cheerily if sometimes wearily by his youthful endeavors, which were heartened and strengthened by the very needs as well as the love of a mother and sisters at home. From such schools graduate what ought to be the controlling influences in the communities and commonwealths of the country.

Brought up in the country, which they say God made instead of the town, living upon a farm, attending at times the district school, going to the village "on the Fourth" and election days at least, the Ohio boy made his home record. From what has come after we can guess or more truly deduce what it was. The long Summer days in the field; the handling of cattle and horses; the hands hardened to useful services which strengthened and developed the body; and the mind guided to thought, judgment, endeavor, by daily recurring and by casual calls upon it—these make a boy grow from many sides; and the skies, and woods, the streams, the whole landscape views, and all the seasons' changes, bringing or withdrawing bloom and fruit, growth, and harvest, bird and flower, with now and again the rainbow hung in the far heaven and making supernal promises; all these are the companions of such as young Rusk was until and after his father died, when he was 14, and he instead became the right hand of the family. He could not fail then. You can see that now.

Before the time when railways drove stage-coaches out of the general view, the driver of the stage was a greater man, and far greater oracle, than the modern conductor, with a less costly style, however. It was therefore a tacit compliment of business men to young Rusk when at 15 he was employed to drive the Janesville and Newark stage. Of this time one writer says:

> There are few youths of the present day that at the same age could reach the dignity of handling a four-in-hand and be intrusted with the responsibility connected with the management of a busines such as that which fell under the care of young Rusk.
>
> It is possible that this period of his life furnished him a training and an experience which became of value in later years. There was a simplicity in his manner of managing his team that he has imitated in his driving as an official and a politician. There was no style about his early operations. There was no flaunting display, no gathering of a handful of reins in his hand, as in the case of the modern manipulation of a four-in-hand. He used but a single rein; instead of being seated upon a box remote from his team, he sat among them, within easy reach of all, where he could encourage them with touch and voice. The single rein was ample for all guiding purposes, and at the same time scarcely afforded a suggestion of restriction or compulsion. They felt no multiplicity of reins flapping across their backs; * * * the single line was unnoticed, and they cantered on, believing they were enjoying a total freedom, and all the time were being guided at the will of the man mounted upon the wheel-horse.

The writer infers that similar familiarity and nearness to the instruments of his purpose, and similar simplicity of guidance, have enabled Mr. Rusk to conduct political stages to happy destinations and in agreeable ways. It is evident that "political bosses" have studied in a different school.

It is not necessary to see the whole course of a river to find out which way it runs, what are its characteristics, and about where it is coming out. If it is an interesting stream a good look at it from point to point and headland to headland will give sufficient variety, with a sense of pleasure. In the first place, after finding

that the boy Rusk, in the midst of his early growth, was given such share of his father's burden as he could carry, we find that he must have carried it bravely and well to entitle him to the confidence manifested in the position he took at 15. Any place, however humble, well filled is a stepping-stone to success. Marriage was his next success, in 1849, and then a few years later he moved to Wisconsin and built a home for himself and family in Vernon (then Bad Ax) County upon land which he still owns, with considerable additions. There have been no transplantings of the family tree, and Mr. Rusk was at least able to "grow up with the country," having the elements of growth in him.

This *statu quo* business, by the way, is often in itself a sufficient capital for a young man, joined to his own natural or acquired resources. "Stick," "stay there," "hold on," if you are where you can get a hold—that sententious advice is almost certain to be wise. In this country most places are undergoing developments which increase values, sometimes enormously; and the young man who gets hold of real estate and "bides his time" need not be discouraged, as a rule, unless he is personally unworthy, and then he may as well keep moving. *Statu quo* made our first millionaires.

Young Rusk was only 23 when he settled in Wisconsin, his first serious business venture for himself. He was tall, broad-shouldered, lithe and strong, with a large, fine head, brown, abundant hair, blue eyes that could be tender as a woman's or fierce as a wild beast's in anger or in pity, and taken in all had a pleasing and striking physique and countenance, a presence which appealed to confidence and good will. His qualities made him an active man and an excellent neighbor, self-respecting but never "stuck up."

Shortly after settling in his new home the people found out that young Rusk would make a good Sheriff, on general principles, and because by shrewdness and strength combined he found and captured, singly and unarmed, a horse thief whom the regular officials missed. So he began official life as the recent idol of the Democracy, Grover Cleveland, did, and acquitted himself quite as creditably. During this time his first wife, once Miss Mary Martin, died, and later he married Miss Elizabeth Johnson, who still presides in his home.

Thus successfully engaged in business activities—farming, keeping a hotel, running a line of stages, performing the duties of an important County office—the early manhood of Mr. Rusk was passing along an even and useful way, through broadening aspects, when the war of secession was precipitated upon the Nation. He was 32 years old when, in July, 1862, after raising the 25th Wis., he was made its Major, declining the Colonelcy because, as he afterward stated, "I did not think I was competent to take command of a regiment, or that I had the experience necessary in military matters to fit me for any rank higher than that of Major, which at that time I regarded as more ornamental than otherwise." This modest estimate of both the importance of the position and his own abilities was quickly corrected by active service, however; and it was not long before Maj. Rusk found out the essential grimness of his most ornamental duties, and finally that he was the serviceable and then the official head of his regiment, which he commanded to the end of the war, declaring that he would never leave the service until the last armed Confederate had succumbed.

Col. Rusk was now in military command of something like a thousand men, a regiment having among the number 35 officers selected mainly through the confidence reposed in their ability; and these officers and their comrades-in-arms, many of whom were their equals in ability and all their equals as citizens, were almost as neighbors at home. A good many of the early crop of volunteer officers in command, from Captains to Generals, "pegged out" very soon. The loss of confidence of their men and of their associates, unless retrieved by some worthy *coup*, became a force in weeding out that could not be easily resisted. At least, and often at once, it must be known or discovered that a commander was fit for his place, or his command suffered in condition, in morals, in military and home estimation, and therefore in usefulness. There is abundant evidence that the 25th Wis. managed to get along pretty well under its young but stalwart Colonel. With energy, zeal, integrity, "good horse" sense (which is a species of appreciable genius), and absolute fearlessness at the head of a command, these qualities are called into play throughout the organization, and characterize it. Let us see:

This is no history of the war, or of a regiment. Col. Rusk's command served in the Western armies, and had its share of hard fighting. Said one of his officers: "He was a model soldier," and added, what is not fully appreciated as one of the evidences, "He never drank a glass of liquor of any kind! and devoted his entire attention to the duties of his position." Further, "He was exceedingly popular with his command, looked after its interests and comfort, and 'stood by them' on all occasions. He was always very fearless and cool, never hesitated to expose himself, and had three horses killed under him during his service." Such a leader could but make good soldiers of his men, for his qualities became theirs.

And he would not consent to have his regiment and himself beaten out of a well-earned right to lead, whatever the danger, and in virtue of the danger to be encountered. At the crossing of the Salkahatchie River in February, 1865, Rusk's regiment was with Mower's Division, which had beaten others in the march to the ford, and it led the leading brigade. His regiment was consequently first at the river. Where the crossing had to be made there was a strong infantry and artillery force of the enemy opposite, and the approach to the river was swampy and difficult, except by a narrow road, and unavailable to cavalry or guns. Gen. Mower, when the time to force the crossing came, could not find the brigade leader, and proposed to bring forward another brigade. To this Col. Rusk objected decidedly. He stated that he was there, ready to move at once, and did not wish "to be cheated out of the lead." He said, "Gen. Mower, I protest against being left behind, because it is not my fault that the officer is absent. I want the advance."

But Mower moved forward another brigade. Then, probably realizing the justice of Col. Rusk's protest, he sent for him. "Bring up that Colonel who objected to remaining behind, and we'll give him a taste of what he's yearning for," was his order to Capt. de Grasse, of his staff. Col. Rusk appeared duly and asked if the General had any orders. "None," said Mower. "Drop right down there," pointing to the crossing, "throw your men in, and clear that road. I wish to get to the river. If you don't do it right, I'll know it. That's all."

Cool things, these orders are. What could be simpler? It is the execution of these simple official desires which develop so suddenly so much sulphury smell and broken iron, with the later rattling rain of lead against which the brave boys lift no umbrellas. Rusk formed his command, charged down the narrow causeway, and carried the crossing gallantly through a severe fire of shell and musketry, which swept away his men by dozens. The fight was brief but desperate; but "I made a crossing, and was successful, very successful, as I thought," said Col. Rusk. It was so hot during the fight that Mower's staff, who began to follow the charging column, suddenly "got out" of the road into the swamp, where they had to dismount and reach safety on foot.

In the charge a shell cut the brow-band of the bridle on the Colonel's horse, and the horse fell and threw the rider over his head. The shell took off the head of the Colonel's Bugler and killed two other men also. Though bruised by his fall the Colonel scrambled up and led his men on foot. He "kept with his team," as in tho old stage days. After the fight the brigade which Rusk had led to success was relieved by another and went into camp, when Gen. Mower sent for the Colonel, who soon reported at the headquarters tent, was called in, met by a glare from the Division Commander for a moment, and then addressed:

"Yes, sir; I sent for you. You are the only man in this army, or any other army that I ever saw, who could ride farther into hell than Mower, and I want you to take a drink with me."

"I thank you, but I can't do that, as I never drink," was the reply.

"You don't? Well, I should like to know how a man can ride so far into hell without taking a drink," said the General. "Do you eat?"

"Certainly I do," replied the Colonel, "and would be glad to do so now, as I have not had a bite since morning."

Mower ordered supper, and "always, from that time on, he treated me with the greatest kindness and consideration up to the day of his death," says Gen. Rusk, for the Lieutenant-Colonel was brevetted Colonel, and then for bravery in this action Brigadier-General afterward. The limits of this article could be filled with other incidents of his army career, alike characteristic and creditable. They all tell the same story in different ways. And when his regiment was mustered out at Madison, at the close of the war, the estimation in which he was held is told in a letter in which his surviving officers and men said to him that "there is none more gallant and daring;" that he "asked nothing and received little," like many another, and that he was at once "a gentleman, a soldier, and a hero." His long-time Brigade Commander also wrote to him in high praise.

Returning to the walks of peace, Gen. Rusk was elected Bank Comptroller in 1866, after nomination by acclamation. He had been in the Legislature in 1861, it should have been noted, and broke a deadlock about organization by sheer pluck, and this was his second conspicuous civil office. The term was for two years and he was re-elected, and owing to a decline in State banking institutions recommended the abolition of the office, which was constitutionally accomplished. Then in 1870 he was elected to Congress from the Sixth District "by the largest majority ever given in any district of the State to its Representative," said a local journal. He took his seat first in March, 1871, and entered upon a new field and a much broader one. It was in the same year that the writer hereof was made an officer of the House of Representatives and first saw the subject of this sketch, and afterward during the sessions of two succeeding Congresses; for Gen. Rusk was returned as his own successor in 1872, not this time "by an overwhelming majority," but without a competitor, so popular had he become, and in 1874 he was re-elected for the second time. In his first term he served on the Committees of Public Lands and Militia. In his second he was Chairman of the Committee on Invalid Pensions and a member of that on Mines and Mining. In his third term, in the first Democratic House after the war, he was on the Committees on Invalid Pensions and on Agriculture. An examination of the *Congressional Record* shows that Representative Rusk was a diligent worker, whose efforts in the shape of bills met with more than average success, and that he took good care of "the boys in blue." He is credited with "remarks" enough to show that he bore his part in debates of particular interest to his portions in the legislative work, and a speech of his upon the tariff in its relations to agriculture, delivered in the House, became a campaign document in 1876. He appeared to be always on hand, always watchful of proceedings, and always cool and unflurried.

There are many still about who personally witnessed that struggle in the 43d Congress over the bill known legislatively as "H. R., No. 796," to "protect all citizens in their civil and legal rights," and popularly as the "Civil Rights Bill," which struggle for and against the passage of the bill was called "the deadlock," and prolonged a legislative day through some hundred hours. That was a time which tried men's bodies quite as much as their souls, for the House never adjourned, and constant quorums were necessary to the Republican majority. Sam Randall had long been cramming on the rules, and parliamentary practice, under the Journal Clerk, John Barclay, and he led the fillibustering, and it made him Speaker later. Most men, whether members or clerks, got tired out, and the wear killed Buffington, of Connecticut. But toward the southeast corner of the hall sat Jeremiah Rusk, always ready to answer to the innumerable roll-calls. Men slept in any way they could, waiting for those calls. It was a trial of physical endurance,

and propriety of attitude was of secondary or no account. Calling the roll of hundreds of names over 50 times in succession, this deponent saw Mr. Rusk usually looking cheerful and comfortable, with his long, Western legs resting over his desk, and heard him promptly answer to the calls. He seemed never to have tired, and he looks that way yet. Gen. Rusk retired from Congress to his farm, after his six years' service, where he enjoyed the quiet of home life until called to be Governor, in 1881. He declined the Ministries to Paraguay and Uruguay, and to Denmark and Sweden, offered him by President Garfield, and also the Bureau of Engraving and Printing. Only a month after his inauguration the Chicago, Portage & Superior Railway Company failed, owing two months' pay to 1,700 employes, who became desperate. When appealed to to send militia to quell disturbances, the Governor sent provisions instead, with the terse and humane reply, "These men want bread, not bayonets." The bill for the transfer of the land grant of the road to a new company, soon introduced into the Legislature, was required by the Governor to provide for the payment of the debts of the old company, including the cost which the State had incurred on account of the employes, and about $76,000 was thus secured to the latter in full payment of their claims. Such sagacious care and foresight legitimately increased Gov. Rusk's popularity.

An amendment to the State Constitution during this first term provided for biennial sessions of the Legislature and prolonged the term of the Governor one year. During this last year the Governor was invited to attend a soldiers' reunion at Minneapolis, with his staff. He was present, but with an extemporized staff of crippled veterans of the war, whose expenses at a first-class hotel he paid. This considerate act of *camaraderie* did not prevent his re-election to the Governorship, although it did not become epidemic among such officials, so far as is reported. It should be stated, as characteristic of the man, that he added a plank of his own to the platform on which he was first elected, in a letter to the Chairman of the State Central Committee, in which he came out squarely against prohibition as a political or legislative question. As war had not taught him to dodge, politics could not.

It was during the second term of his Governorship that the Milwaukee riots occurred. On that occasion also he dodged no responsibility, but assuming command in person of the State troops he promptly dispersed the strikers and suppressed the riots. The people of the State generally, without regard to party, heartily applauded the acts of their Executive on this occasion, and their approval was re-echoed from the press of every State, also without regard to party.

It is not true that the so-called century plant blossoms only in a hundred years, but nevertheless it lives long before it almost suddenly blooms. But who shall assert that such finally rapid expansion is not according to the wisdom of nature, as truly as the tardier and more demonstrative evolution of some other flower? So in the affairs of men and of communities, acts and results which seem sudden and perhaps ephemeral have their natural and efficient antecedents, however occult their processes may have been or seemed to be. "By the same token," the Milwaukee riots, judged superficially, were simply an unusual incident springing from an exceptional condition, and the action of the Governor was an unusual incident, dependent upon the former one. But a deeper insight and a due regard to cause and effect will show that the training and nature of the Governor, from boyhood up, had steadily and-insensibly prepared him, in every way personal to himself, to be ready and sufficient for such a collision with counterforces devoid of rectitude, as surely as such forces became active within his sphere. If this were not so there would be no sure value as to results in the life-long pursuit of right. As things were the Governor's acts were not simply those of public duty—they were a part of him, of the man, Jeremiah M. Rusk, and the sudden National prominence they gave him was as legitimate and inevitable as the blooming of the aloe at its time. Their logical roots went back at least to his youth, and were nourished by the fact of duties done to home, to the community, to the Nation. Wire-pulling produces as few statesmen of the sort here indicated as the hangman's rope does of first-class saints. The people of Wisconsin recognized the difference in the election of Mr. Rusk to the Governorship the third time by nearly 20,000 majority.

And it was not alone against anarchy as represented in riots that the Governor served the State, according to Democratic evidence. "He has rendered the State a service during the last six days of 20 times more value than all the salary he has drawn as Governor in six years," says one Democratic paper, at the end of a session of the Legislature, relative to jobbing bills vetoed. "Gov. Rusk deserves every particle of praise and kindly regard in which he is held by our people—rugged old Republican that he is," says another. "Gov. Rusk has made himself so solid with the business men and voters that to-day he is the strongest man in America. He has done it while forgetting that he was interested in politics," said the Milwaukee *Sun*, whose editor is now Democratic Governor. This related to the riots. This whole half column article is discriminatingly and critically laudatory; but the present Secretary of Agriculture laughed heartily (and I believe now he blushed, too,) as he said to me, "You'll find it humorous, an awful funny article!" "His own history guarantees his entire sympathy with all honest efforts made by real workingmen to improve their condition," most truly says the Philadelphia *Times*. But I could quote a volume.

Among the names of "favorite sons" presented by State delegations to the Republican National Convention in 1888 as worthy to head the National ticket was that of Gov. Rusk. Senator Spooner nominated him to the Convention in a forcible and eloquent speech, all of which is quotable. But there is newspaper evidence enough on all sides to show that Wisconsin was amazingly unanimous for its only favorite. President Harrison selected him for a member of his Cabinet, as Secretary of Agriculture, and since March, 1889, his activities as an official have extended to the limits of the country rather than of a State. And the range has become wider still, extending in the interest of our greatest industry to every considerable foreign country where our agricultural productions find a market. His inauguration of a system of cattle and meat inspection has restored to our meat products the European markets, and efforts now being made seem destined to make our maize, by far our largest cereal product, an article for table use there as it is here, and therefore to extend its marketability and give it regularity of sale beyond that of the past. As the Department of Agriculture was not one of the Executive Departments proper until a month before it came under Secretary Rusk's control and as the Weather Bureau was later transferred to it, considerable organization and widening of the scope of its work became the business of the present Secretary, which has been so far accomplished intelligently and quietly as well as with true economy. Well-ordered power moves smoothly and makes no unnecessary noise.

A summary of Secretary Rusk's public record would show him as a Sheriff for one term, a Member of the Legislature for another, three years a soldier in campaigns against the Indians in Minnesota, and then against Vicksburg, Meridian and down to Atlanta, and "from Atlanta to the sea," leading the advance of the Seventeenth Corps; then a State official, six years in Congress, seven years Governor, and now three years a Cabinet Minister—some 22 years of public life in which "the office has sought the man" and found him always more than capable of filling it,

In all this service which held relation to industrial endeavors Mr. Rusk has shown himself notably the friend and servant of the great farming interest, and among agriculturists he is probably the most popular man in the United States today. And being but 62, strong and vigorous in mind and body, there may well be a still broadening future before him. Seeing such a possibility a prominent Wisconsin Democrat said:

"Gov. Rusk is a daisy wherever you put him, and if the time should ever come when he should occupy the"—well, a pretty high chair—"he is going to get rousing cheers from every Democrat that I can have any influence with."

Use of Wind Power.

People get so weary of wind in political and agricultural orations that they are apt to forget that it can be made a very useful servant and save a vast deal of hard work about a farm. The windmill has never had a fair show on the farm. It has been found quite useful to pump water, but few farmers have seemed to remember that it can saw wood, shell corn, churn cream, winnow grain, grind feed, and do much other drudgery equally well. There is every year a great deal of idle wind howling about the farm, which ought to be set to work saving muscle. The time will soon come when we shall have an effective method of storing up the wind power till we want to use it, either by pumping water into a reservoir or raising sand or heavy weights into a tower. But even until then every well-regulated farm should have a wind-wheel and a work shop at the base of its framework, where a great deal of effective labor can be done while the gales are shrieking wildly over the land.

Alabama Cotton.

The preliminary report of the Census Office shows that the acreage of cotton in Alabama in 1889, '90 was 2,761,771; the number of bales produced, 915,414, not including linters; the average yield per acre, almost exactly one-third of a bale, and the total value of the crop to the producers, $42,009,171. The figures reported by the 10th Census for the year 1879, '80 were, acres, 2,330,086; number of bales, 699,654, and yield per acre three-tenths of a bale. The value of the crops in 1880 was estimated at $35,393,490.

Japanese Fads About Flowers.

The Japanese consider it especially difficult to arrange chrysanthemums, and seven faults are noted which must be carefully guarded against in disposing of large blossoms of this plant. A blossom must not present its back in a composition, nor yet turn its full face to view; the different flowers must not have stems of the same length; three must not be arranged in a triangular form, nor may any number be placed in a regular steplike way; the flowers should not be hidden by leaves, nor should a large, open blossom be put near the base of the composition, and, finally, the artist must not fall into the sin of color-sandwiching, or placing a blossom of one color between two others of another tint.—*Garden and Forest.*

Keep Your Farm and Your Farm Will Keep You.

One business is as much as any man can attend to profitably, and there is no other kind of business that requires sole care and attention so much as a farm. No farmer can succeed who does not make the farm his lifework, and, forsaking all others, keep only to this, with a determination to succeed. Moreover, it is the special farmer who is the most successful; he who chooses some one particular kind of work or product, and, keeping closely to it, makes it a subject of study and is always improving his methods and increasing his income from it. A business is of slow growth. No one can be built up in a year and have a solid foundation; and a farmer's business is of as slow growth as one of his apple trees. He must plant in hope, cultivate with perseverance, water with industry, fertilize by intelligence, and the increase will then be abundant, whatever branch of agriculture he may have chosen. But the rolling stone gathers no moss, and precisely so the farmer who is ever changing will never succeed.

We need to cultivate the love of home to such an extent that a farm should be held as a permanence. Every addition to it, of a tree even, should be one more tie that binds the owner to his home, and the thought of leaving it should be so painful as to be smothered the instant temptation arises in the mind. And to make it so, one, at least, of the sons should be taught to look upon it as his home some time in the future.—*New York Times.*

OSTRICH FARMING IN EGYPT.

How These Curious Birds Are Raised, Fed and Cared For.

A Visit to a Big Ostrich Plantation Near Cairo and a Look at its 800 Birds—How Ostrich Farming Pays and What the Feathers Sell For—How Their Eggs are Hatched and Something About the Great Incubators—A Look at a Baby Ostrich and the Process of Pulling the Feathers—Can Ostriches Be Raised in America and Will They Pay?

[Written for THE AMERICAN FARMER by Frank G. Carpenter.]

TAKING A SOUVENIR.

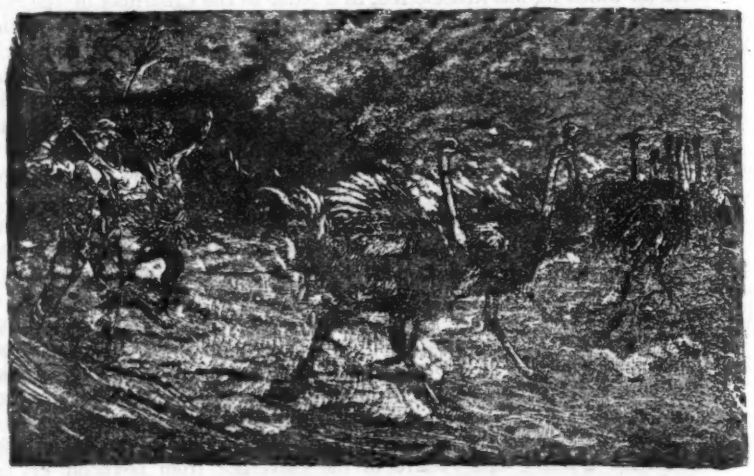
I VISITED during my stay in Egypt one of the largest ostrich farms in Africa. It contained 700 birds and it lies on the edge of the desert, within five miles of the great city of Cairo, between the spot marked by the Obelisk of Heliopolis, where Plato taught school, and the tree under which the Virgin Mary and the Infant Jesus are said to have rested some 1,800-odd years ago. Africa is the home of the ostrich, and there are evidences in the hieroglyphics on the Egyptian monuments that ostrich raising was carried on by the Egyptians in the days of the Pharaohs. I am told that some of the tribes of the Soudan and of the interior still raise ostriches, and that they take care of them very much as we do chickens, housing them at night and letting them skirmish about for their food in the daytime. Ostrich farming on a scientific scale, however, was nowhere known until a quarter of a century ago, when a Dutchman started an ostrich farm with 65 birds in South Africa. Now the exports of feathers from that part of the country amount to millions of dollars every year, and ostriches are raised by the tens of thousands. About nine years ago a number of the birds were brought to the United States, and several big ranches in southern California are devoted to them. There are ostrich farms in Algeria and Senegal, and the business has been carried on with profit in the Argentine Republic and in other parts of the world.

I have paid two visits to this ostrich farm near Cairo. My first was just before the revolution of Arabi Pasha, when the farm contained only 70 birds. The second was during my tour around the world about eight years later, when this number had been multiplied more than tenfold. During my first visit ostrich feathers were very high, and a good laying ostrich was worth, so the farmers told me, $1,000, apiece, and each bird brought in $250 a year from the sale of its feathers. This, in addition to the wonderful increase brought about by its continuous laying and hatching, made the birds very valuable, and even now, at reduced prices, the farmer is said to be making a fortune.

His farm consists of 50 acres of desert sand. It is divided up into fields of about one-third acre each and these fields are surrounded by high mud walls. They look more like cattle pens than the fields of a farm, and they are ranged around a court in which the farmer has his residence and hatching houses, and nothing but a paling fence keeps the great birds from invading their master's front yard. In walking about this yard you go past one field after another, and you see ostriches of all ages, sizes and sexes engaged in all the occupations which make up ostrich life. They are the most wonderful birds in the great aviary of the world, and they are nearer human in their traits and looks than any animal which wears feathers. Some of those I saw at Cairo were eight feet high, and their eyes were as large as those of a man and of about the same shape. The heads were very small, but the bills were remarkably long and flat, and when one of them snapped at me its lips came together with a crack like that of a pistol. The male ostriches are by far the most beautiful. Their feathers are of a rich, glossy black, while those of the females are of a delicate gray. The male and female ostriches are kept in the same pen, and I spent hours watching an old beau ostrich and his coy, modest mate. The beau wanted to be friendly, and he strutted about pluming his feathers, cracking his bill and attempting to rub up against his gray-feathered sweetheart. She, however, repulsed him and kept seeking a different part of the pen than the one in which he was.

The owner of this ostrich farm was a Swiss, who chatted quite freely to me in German concerning the habits of the ostrich, and he told me that there was more equality of conditions among the sexes of ostriches than among those of any other animal, including man, that he had ever known. The male ostrich has to do his share of the work in raising the children. When the hen gets ready to lay she marks out a spot on the sand with her bill and then motions to her liege lord to come and dig the hole for her. He does it squatting down on the sand and clawing out the earth with his legs. The nest is oval in shape, and it is about a yard wide and about a yard and a half long. After the nest is made the two ostriches keep together until the young are hatched out. The female ostrich is, I am told, very jealous, and she becomes very spiteful when she is laying. It is exceedingly dangerous for a man to approach her at such times, and the male resents her being touched by anyone. She begins to lay a day or so after the nest is dug, and she lays one egg every other day for about 20 days. She then rests for a short time and begins to lay again, and she usually lays about 40 eggs, though a prime layer will sometimes reach as high as 60. When the ostriches think that there are enough eggs in the nest they begin to set. They take turns, and the male is the one who has to stay awake at night while the female does her setting in the daytime. Sometimes one or the other does not tend to business, and this makes his partner very angry and he drives her on the nest. The male as a rule does most of the setting, and as this lasts about 45 days he has his share of hard work. It is his duty also to break the shell when the ostrich chicks are ready to hatch, and he knows that this is the case when he hears them trying to pick their way out. Sometimes they succeed in doing this, but an ostrich egg is about as thick as the pasteboard in the cover of a school-book, and it is very hard to break. When the father hears the chick trying to break it he forces his breastbone down upon it and cracks it, and then tears out the inside skin and lets his baby out. A few hours after it is hatched the little ostrich gets on its long legs and toddles around, and it begins to eat about four days after it is out of the shell.

I saw a number of these baby ostriches in the Egyptian farm. They were in little pens by themselves, and some only a day old had feathers of the downy nature of a chicken just hatched. Their bodies were the size of a full-grown hen, and they seemed to be all eyes and neck. Their eyes were as large as those of an American baby. They were soft, dark brown, almost childlike in their loveliness. Their furlike feathers were brown, and they waddled about like so many little ducklings. These little ostriches are very delicate and they have to be carefully treated. They are fed a little grass cut fine, together with pieces of ostrich eggshell ground up after they are four days old, and when they get to be two weeks old some bran or soaked corn is given them. It is very important that the chick be kept warm,

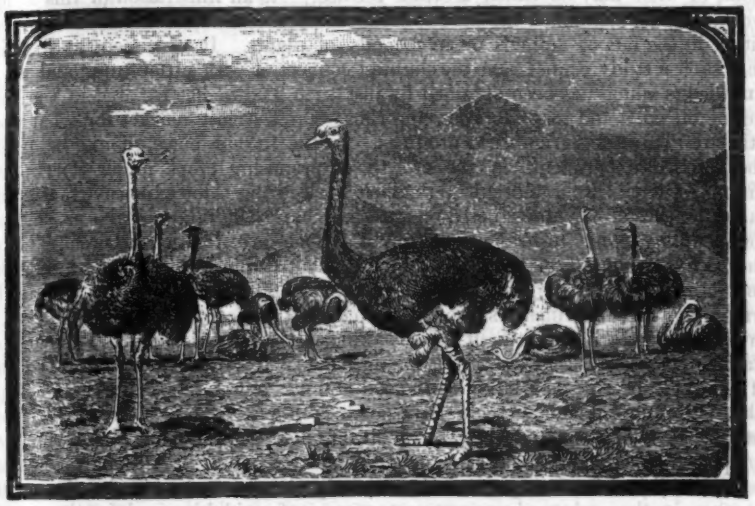


DRIVING OSTRICHES IN A STORM.

and Egypt is an especially good place for raising ostriches on the account of the dryness of the air and in fact that there is little or no rain. An ostrich chicken increases very rapidly in value, and a good layer will produce enough chickens to pay for herself many times over. The ostriches set two or three times a year, and a pair of good birds has produced in flush times from $2,000 to $3,000 worth of chicks per annum. The chicks grow very fast. At a month old they are as big as a turkey, and they are ready for picking for the first time at the age of nine months. Their feathers at this time are not worth more than $5 per bird, but they grow better and bigger as the birds grow older, and a full-grown ostrich will produce from $75 to $250 worth of feathers per year. A good bird should produce 40 fine feathers every picking, and an ostrich chick a month old ought to be worth $50. Full-grown ostriches often bring as high as $1,000, and some birds have been sold from $5,000 and more.

The birds seem to produce better feathers as they grow older, and under proper conditions they will live longer than a man. The hen ostriches begin to lay when they are four years old and the males mature at five. In this Cairo farm I found that ostriches of the same age were herded together, and one pen contained some great birds, each of which was over seven feet in height. When the keeper clapped his hands at them these birds spread out their wings and ran across the fields at the speed of the fastest trotting horse. They seemed to swim over the ground, and they were the most beautiful things I had ever seen in Nature. They were very easily frightened, and they seemed sensitive to our actions. The keeper shook his fist at two of them and they opened their bills and snapped at him like angry dogs. As they did so their necks, heads, and legs became as red as blood and he told me they were flushing through rage. He pointed to their big two-toed hoofs and told me that a kick from one of them would kill a horse or knock a man's head from his shoulders. This keeper was an Egyptian in a turban and a long gown. He seemed to understand all about the raising of ostriches, and he took me into the incubating rooms and showed me the processes of artificial hatching. The ostriches here are allowed to set on from 16 to 20 eggs at a time, and as they produce about 40 eggs before setting the surplus goes to the incubators. He told me that they found less danger in hatching artificially than naturally, and he said that the eggs were taken regularly from the nests every day, always leaving one for a nest-egg, as we do with our chickens. He showed me a number of eggs. They were as big as the head of a six-months' old baby and were of a smooth ivory whiteness, with

freckled little specks or pores in their surfaces. As soon as an egg is found its weight and the date of its birth is marked upon it, and the date of the time that it is put into the incubator is also marked. The eggs are laid in padded pine boxes, and they are kept in this shape in a room at a fixed temperature—about 102 degrees Fahrenheit—during the time of hatching, being tested day after day by being placed in a hole in the wall of a dark room. This hole just fits the egg, and it makes a window, as it were, through which the light shines and in which you can see the condition of the contents within. If the egg is clear the light will pass through the shell, and if it is impregnated the light will only be seen at the larger end, where the air-chamber in the egg is found. The eggs are turned every day, and toward the last they are watched very carefully to see whether the chicks are old enough to hatch. The breaking of the shell at the proper time is done with a tack-hammer, and the baby ostrich is laid away in a box of warm cotton for 24 hours after it is artificially hatched. As soon as the birds are out of the shell their eyes are tested, and if they are of a certain lightish color the chicks are killed, for they are then albinos and they will not be good for laying.

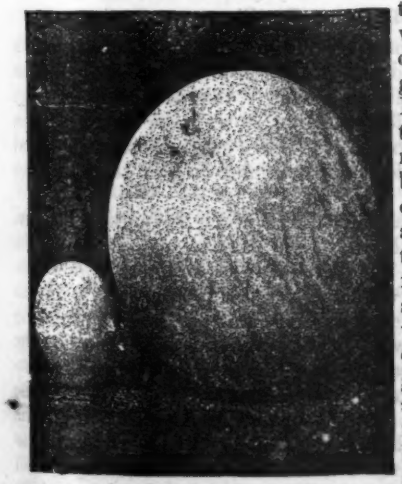


California Ostriches "More Than a Year Old."

I saw about this Egyptian ostrich farm a great number of cracker-cans, and my turbaned guide told me it took 30 tin boxes of crackers every two days to supply these birds with their lunches. They eat great quantities of green stuff and clover, and they chew up gravel by the peck. I was shown about a half bushel of stones ranging in size up to the size of a chestnut which had been taken from an ostrich's stomach, and the supply of pebbles is a very important matter in the diet of the ostrich. They are enormous eaters, and a pair of ostriches will eat six pounds of barley a day in addition to its green stuff or pasture. In California the birds are fed to a considerable extent upon alfalfa, and they are said to be fond of grass, vegetables, weeds, and broken bones. They eat Indian corn, and they are not averse to fruit and berries.

Not long ago the value of the exportation of ostrich feathers from Africa was $5,000,000 a year, and fully half of this amount was sent to America. Good feathers often sell for $5 and upward, and there is little doubt but that under proper conditions ostrich farming might be very profitable. The African farmers aim to make about 30 per cent. off their capital invested, and the profits, of course, rise and fall with the price of feathers and the fashion.

It is no small matter to get the feathers after you have the ostrich. The best of the feathers come from under the wings, and each bird has 25 white plumes under each wing, with a row of small feathers around these. Above the white feathers there is a row of black feathers, and there is another row of feathers above this which are black on the male bird and drab on the female. Different ways are used for getting the feathers by different farmers. In Egypt the feathers are pulled out and the birds are plucked about every nine months. This operation usually draws blood, and as it is very painful to the ostrich they naturally resist. Feathers are also pulled from the tail as well as from the wings, and in some cases they are cut from the skin with a knife. The ostriches are caught for plucking by coaxing them with corn, and while the bird's head is down in the effort to pick this up the keeper grabs him by the neck and throws a cloth around it. Other men then force it down into a sitting position, and it is usually brought into a corner where it can be managed with safety. When the feathers are cut off the quills which are left in the body finally drop out and new feathers grow.

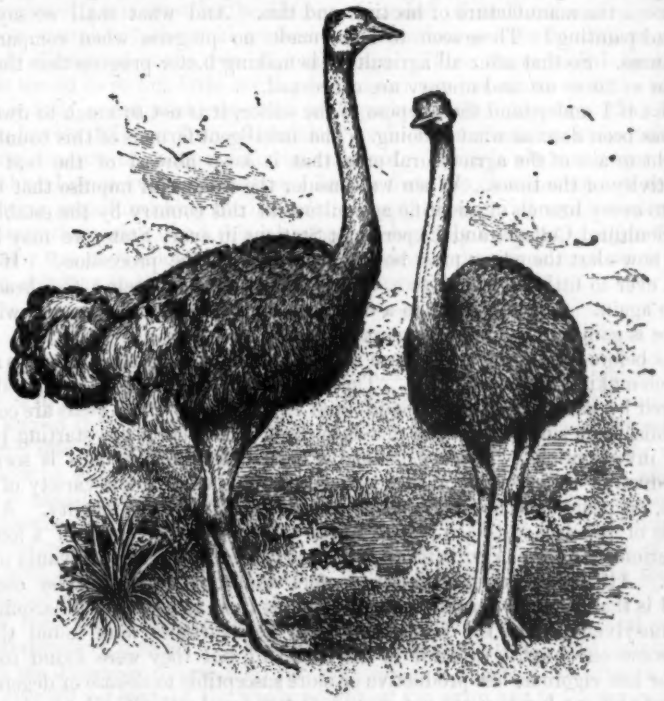


Comparative Size of Hens' and Ostrich Eggs.

After the feathers are drawn they are sorted and sold to merchants who carry them to London, from whence they are sent to America. The feathers when plucked are neither curled nor washed, and they have to go through quite a process before they are ready for use on our ladies' hats. It takes about half an hour to pluck each bird, and the work of caring for the animals is so great that there is little profit in raising them unless the feathers bring a fair price. Not long ago they were down as low as $50 a pound, and this price, in comparison with the palmy days of ostrich farming, is as nothing. Just now feathers are quite fashionable, and the prices ought to have risen.

In 1882 many ostriches produced as much as $250 worth of feathers at a plucking, and for a time some of the California farms averaged, I am told, $200 per ostrich for their feathers alone every year. The best birds are those brought from South Africa, and on a farm near Santa Anna there are about 150 very good ostriches. These birds are cared for on scientific principles, and they are, I am told, paying the farmers. The first ostriches brought to this country were brought by Dr. Charles J. Sketchly, who was one of the big ostrich farmers of Africa, and who brought his birds *via* South America to New York, and then shipped them across the country. A company was organized with $30,000 capital to manage this California ostrich farm, and the farm upon which they were placed contained 600 acres. The first ostrich chicken hatched in the United States saw life on the 28th of July, 1883, and 270 eggs were laid the first year. There are now, I am told, other ostrich farms in California, and with the increase which ought to take place in the price of feathers the industry may become a profitable one. Whether it could be successfully engaged in in any of the other States outside of California is a question; but ostriches have been introduced into Mexico, and the birds are hardy and long-lived, though they are very susceptible to disease and seem to have nearly all the evils that human flesh is heir to.

Some of the ostriches brought over by Dr. Sketchly died of consumption of the lungs, and some birds imported from Abyssinia to the United States did not do at all well. Still the healthy birds breed so fast (some producing 50 chickens every year) that, with a little encouragement, we might soon have a great ostrich industry. Our conditions can never be as favorable as those of Egypt, which is the paradise of fowls of all kinds, from ostriches to pigeons. Egypt is the great land of artificial incubation, and I visited hatching establishments near Cairo where chickens were turned out by the tens of thousands a month. It is estimated that 20,000,000 chickens are hatched artificially every year along the banks of the Nile, and the incubatory which I visited was a rude one-story building of undried bricks. The eggs were laid upon cut straw in racks in rooms which were kept warm by ovens,



A Wedded Pair.

and the only thermometer was the blood of the man or boy who watched the fires. It only took one man to overlook about 5,000 eggs, and this man kept the fires, turned the eggs three or four times a day, and sold or traded the chicks for eggs to customers. The Egyptian chickens are not as large as ours; still the country produces proportionately a much more profitable poultry crop than we do, and I was told that farmers bought chicks for raising at the rate of 20 cents a dozen, and that at the average hatching establishment a downy little chicken just out of the shell could be gotten in trade for two eggs.

Seeding Grasses.

Clover should be sown in the Spring as early as the ground can be worked, which should be pulverized as finely as possible and the seed sown just before a rain, if the sower is weatherwise enough for that. Sow eight quarts to the acre and harrow smooth. If weeds come up thickly mow them down and let them lie. Other grasses should be sown with wheat in the Fall, and the following quantities are recommended: Timothy, 5 pounds; Taller Oat Grass, 10 pounds; Rhode Island Bent, 4 pounds; Orchard Grass, 3 pounds; White Clover, 1 pound; Red Clover, 2 pounds; Alsike Clover, 1 pound.

PROGRESSIVE AGRICULTURE.

The Art of Tilling the Soil Keeps Pace With the Advance in Other Sciences.

BY PROF. H. W. WILEY, CHIEF CHEMIST, DEPARTMENT OF AGRICULTURE.

I have been asked to write the opening article for the new department of THE AMERICAN FARMER, to be known as Progressive Agriculture. Every year has its surprises in invention, in literature, in painting, and in oratory. These are great events, about which everyone talks and in which everyone takes a deep interest. We are all alive as to what shall come next out of that Pandora box, the electrical battery. We are looking for the transit of the new aluminum flying machine, which, with the aid of Prof. Langley, may yet bring to realization the fantastic anticipations of Darius Green. We wonder who shall take the places of Beecher and Spurgeon. There is even some interest manifested in regard to the candidates that may be put in nomination at Minneapolis and Chicago next June.

In the excitement of all these things we sometimes forget that men and women will have to continue to eat; that they will demand clothing and fuel, and that for nearly every necessity of life they are dependent on agriculture.

We may forget, also, that the population of the earth is increasing; that the quantity of food and clothing required are greater each succeeding year, while the surface of the earth is no greater in extent than it was many thousands of years ago, and its fertility is not so great.

The natural inference of all this is that there must be progress in agriculture, if all these increasing mouths are to be fed and all these shivering bodies to be clothed. Nature, however, after all, is more provident than she usually gets credit for. For each new mouth, barring accidents, she furnishes two hands. There is, I admit, a common prejudice against the employment of hands for any useful purpose, while in so far as I know the mouths have kept up their accustomed activity. But if there be any that are disposed to sneer at agriculture as being old fogy, or even retrogressive, I would beg to call their attention to the fact that this noblest of all professions has kept pace with all other branches of human industry. There is just as much difference between the agriculture of to-day and that described by Vergil as between the manufacture of his time and this. And what shall we say of oratory and painting? These seem to have made no progress when compared with other times. So that after all agriculture is making better progress than the human mind in so far as art and oratory are concerned.

But if I understand the purpose of the editor, it is not so much to dwell upon what has been done as what is doing. The intelligent farmers of this country have the right to ask of the agricultural press that it keep abreast of the best thought and activity of the times. When we consider the wonderful impulse that has been given to every branch of scientific agriculture in this country by the establishment of Agricultural Colleges and Experiment Stations in every State, we may begin to realize how alert the editor must be to "keep up with the procession." If he fall behind ever so little he will have a small chance of ever seeing the head of the column again. And this leads to a consideration of some of the lines in which this advance is going.

As before intimated, agriculture is not a science of surprises. There is no place for epoch-making discoveries in it. The methods or progress are well fixed, and it is secured by patient and careful study and experiment. Often years are consumed in establishing a single fact; but this once fixed it becomes a new starting point for further investigations. Perhaps one of the best illustrations of this is seen in the fruit industry. Many years must necessarily elapse before a new variety of apples, oranges, or pears can be pronounced a success in any one locality. A strong example of this has just been placed on my table. It is the result of a long series of experiments by the Agricultural Experiment Station of Pennsylvania on grape culture. All the promising varieties were thoroughly tried. The conclusion reached is that for both gravelly and clayey soils there is no better all-around grape for Pennsylvania than the Concord. Many new varieties were found that possessed some one quality superior to the Concord, but they were found to be less hardy or less vigorous, less productive or more susceptible to disease or degeneration. One year and one location are not enough to test any horticultural novelty, and in such work the Stations can be of the greatest service not only to their immediate vicinity but to the public at large.

Thus we are sure that a certain continuous and permanent advancement will be made in agriculture. In the very nature of the case the industrious farmer, however intelligent he may be, cannot be expected to personally investigate all the proposed means for the betterment of his condition. The agricultural editor, therefore, does a wise thing, and I believe a new thing, in this class of literature when he proposes to discuss with his reader weekly or twice a month the general progress in agriculture which has been made.

Progressive agriculture, however, does not anticipate a future in which the farmer may sit all day in an easy chair and see his crops grow secure from storm and sun and frost. Plows may be better and mowers more efficient, but the true farmer does not expect nor does he desire a future free from labor. The old idea that labor is a curse has given way to the new notion that labor is a crown. Some form of activity is necessary to human progress. Take away the necessity of labor and you start the world at once on its backward course. But labor, although a necessity, should also be a pleasure. The farmer who tills or helps till his own fields should be, if he is not, the happiest man in the world.

It is true that a wealthy man at a distance may be a farmer and not labor in the fields, but those of us who have been brought up on a farm know that there is no easy road to agricultural prosperity and wealth.

Chemical analysis, even, is not a talisman which will confer invisible powers to plow fields and gather harvests. There are accidents in all professions which sometimes bring success or failure without regard to merit; but in agriculture, as in any other profession, true success is reached only by industry, labor, and good judgment.

I therefore dismiss the notion of a millenium of agriculture which shall be a period of beatific ease, and which shall come about by reason of chemistry, or botany, or entomology, or agricultural schools, or experiment stations, or State boards of agriculture, excellent and valuable as all these agencies are.

The coming farmer will, like his ancestor, rise with the lark, bear the heat and burden of the day, and literally by the sweat of his brow earn his bread.

At the present time there is a lively interest throughout the country in the results of purely scientific investigation. The tenor of agricultural progress seems to be in the following directions: First, I may mention purely scientific investigations, or what may be called abstract science. As an illustration of this kind of work, may be mentioned the study of the composition of fat acids as they occur either in the fats of animals or in the oils of plants. It may seem at first sight that such a study cannot have the slightest connection with agriculture; and yet the knowledge which has been obtained by just such studies has resulted in the building of oil mills and soap factories, and thus secured a vast market for what would otherwise be waste agricultural products. In the second place, should be noticed the practical experiments in the growth of promising crops under varying conditions of fertilization and culture. Such work as this is too expensive to be undertaken by the farmer unless he be one of those happy individuals who uses his farm for spending money instead of making it. Such investigations therefore become the peculiar province of the National experiment stations, whether of an independent nature or under the control of the different States. Such work is well illustrated by the experiment stations directed by the Secretary of Agriculture for investigating the possibilities of sugar-making in the United States. Three of these stations are in operation. There is one in Nebraska especially devoted to the study of the sugar-beet in its relation to the soil and climate of this country and its possibilities on a commercial scale as a sugar-producing plant. Another has been established in Kansas to develop sorghum into a sugar-producing plant, which may compete with tropical sugar-cane or temperate sugar-beet. Although it has only been established for four years, it has already gone so far as to raise the question whether in the end sorghum may not prove a formidable rival in the race for existence. The third one has been established in Florida to study the capabilities of the reclaimed swamp-lands of that State to produce sugar-cane of a high order of saccharine richness.

Similar work, but of a more general nature, is carried on by the experiment stations endowed by Congress and under the control of the various States. It is difficult to estimate what a powerful influence all these must have on the future of agriculture. Last of all, in the third place, the knowledge gained by abstract research, and the wisdom which comes from the practical illustrations of the experiment stations, must be applied on the farm that agriculture may derive the proper benefit therefrom. To my mind the above will outline, in a general way, the kind of information the readers of the journal may expect to gain from time to time under the head of Progress in Agriculture.

So, after all, the outlook is not gloomy for him who will have to work in the fields in the coming days. The man who wants to live peaceably, digest his food well, and sleep o'nights, must work. The tiller of the soil is not likely to go insane from insomnia. While improved machines and improved methods may not soften the palms of the hands of the future farmer, they will do much to advance his profession, dignify his toil, increase his yields, and add to the sum of his happiness and wealth. Progressive agriculture will show him the nature of the phenomena which surround him, enlarge his ideas, increase his knowledge, and his labor will be seasoned by the best of all conditions—intelligence.

The Use of Basic Slag as a Fertilizer.

The quantity of artificial fertilizers purchased in any community must not, by any means, be taken as an index of the poverty of the soil of the locality. In that kind of agriculture which is known as intensive, namely, the production of large crops on small areas, the use of artificial fertilizers has grown to be almost a necessity. Especially is this true in the neighborhood of large cities where agricultural lands are so valuable that it is necessary to produce a large crop on them in order to pay the rental.

Among the various forms of phosphatic fertilizers which have come into use in the last few years there is one worthy of special mention. It is one of the characteristics of a true economy to make some use of all by-products which arise in every kind of manufacturing work. For many years there has been a process in use for making steel from iron ores which rests upon the principle of removing from the iron the phosphatic material which it contains and which, entering the steel, would render it almost useless for commercial purposes. This process is patented in Europe by Mr. Thomas and in in this country by Mr. Jacob Reese. The process, however, was first developed in Europe, and slags which come from the furnaces are almost universally known, both in Europe and in this country, as Thomas's slags. It would be more appropriate, however, in this country to call them Reese's slags, since Mr. Reese's process has been declared by the courts to antedate that of Mr. Thomas's.

These slags are very rich in phosphorous, which for a long while were thought to be useless. It is impracticable to convert the phosphate of lime which the slags

contain into superphosphate by the usual method of applying sulphuric acid, as is done with the mineral phosphates of South Carolina and Florida. The slags contain a large excess of lime and also considerable quantities of iron, and when treated with sulphuric acid these constituents consume so much of it as to render the process too expensive for practical use. Happily, however, it occurred to experimenters to try the use of the slags directly, and the agreeable surprise was experienced of finding that the phosphoric acid which they contain is quite as available for growing crops as the soluble phosphoric acid present in superphosphates.

The large steel furnaces which are located at Pottstown, Pa., had accumulated for many years large quantities of this slag, amounting in all to about 20,000 tons. Mr. Reese, who is the patentee of the process, has recently made arrangements to place this accumulated slag on the market under the name of Reese's odorless phosphate.

The quantities of phosphoric acid which are present in the basic slags, of course, vary, but usually they contain from 16 to 24 per cent. The ease with which the slag can be pulverized is also much in its favor, as it can be reduced to a very fine powder without difficulty. Of course the facility with which it is absorbed by a plant will depend largely upon the fineness of the sub-division, and hence it should be ground to as fine a powder as possible. This phosphatic material is entirely odorless, and is easily applied by means of drills or other ways to the land.

When it was first proposed to use this slag for agricultural purposes, it was objected that it contained so much iron that it might prove injurious to the growing crops. This claim was based on the supposition that the slag should first be treated with sulphuric acid, which, of course, would convert the iron into sulphate, the substance commonly known as green vitriol. It should be remembered, however, that in applying these slags to the soil only from four to 600 pounds are placed to the acre. Should they contain, therefore, even 20 per cent. of iron in the form of green vitriol, it would only amount to 120 pounds per acre. Instead of this quantity of iron being prejudicial to plants, there are many kinds of soil on which it would probably be helpful, as a soil which contains a certain quantity of iron seems to have physical properties which render it particularly suitable to the growth of plants.

There is another point in connection with the application of basic slag which should not be forgotten. Not only should soils have a sufficient quantity of plant food furnished them for the proper nutrition of the growing crop, but they should also be in the proper physical condition. The value of good plowing and good cultivation is well understood; but there are some soils in which even plowing and cultivation cannot produce the desired results. There are certain stiff clayey soils which refuse to become porous even on the persistent persuasion of the plow. Such soils, however, can be treated chemically in such a way as to promote their pulverization. The application of lime to soils of this kind has long been known to result in the greatest benefit. It follows, therefore, that there are many stiff soils to which the application of basic slag would not only add a valuable ingredient of plant food, but at the same time, by reason of the lime which these slags contain, the physical state of the soil would be very much improved, and hence the quantity of the crop correspondingly increased. So valuable has the use of this slag proved that there is no longer any danger of its accumulating around any of the steel factories as a waste product not only valueless but actually a subject of expense for its removal.

Experiments have not yet gone far enough to decide between the use of basic slag and other phosphatic materials in regard to their comparative effect upon each kind of crop and on different kinds of soils. It will doubtless be found that there are certain kinds of soils and certain crops where basic slag would be preferable to the ordinary form of phosphatic fertilizer, and the converse of this is also true. Further experiments by the Stations will be required to determine this matter.

Availability of the Phosphoric Acid in the Soil.

The fact that the phosphoric acid in the soil does not always have the same facility of feeding a crop has long been known to chemists and agronomists. Such acid contained in particles of undecomposed apatite and other minerals, while responding to the chemical tests applied in its determination, gives itself up with great reluctance to the demands of plant growth. A simple determination of the acid in the soil, therefore, is no criterion whatever of the rational demands of fertilization. The physical state in which the acid exists is of greater importance than its amount; provided, of course, it exist in any notable quantity. Perhaps the best term to designate a highly nutritious soil phosphate is "rotten." The particle of phosphate must be sufficiently decayed to permit of its solution by the radical exudations of the plant preliminary to its absorption. The causes which produce mineral decay may act so slowly in some soils that even if they have a fair content of phosphate they give it up with such extreme slowness as practically to class them as impoverished in so far as their content of this plant food is concerned. We must therefore seek in some way to hasten the march of time in the proper conduct of plant cuisine. The art of cooking for plants is scarcely of less importance than that of cooking for man himself.

In natural phosphates there is also the greatest difference in physical conditions and therefore in ease of assimilation. The hard and unyielding apatites of Canada are quite in contrast with the soft and almost chalky aspect of some of the Florida deposits. In fact, in Florida there are found large beds of phosphatic clays or sediments, some of which contain nearly half their weight of thoroughly-decomposed material. In other countries also similar soft phosphatic deposits have been found.

In a late number of *L'Engrais* (Jan. 22, 1892) M. Crispo, Director of the State Agricultural Laboratory of Antwerp, complains of frauds practiced on the Belgian farmers by the French miners of soft phosphate.

"But in the last three years," he says, "deposits of very soft phosphates have been found in France. French merchants have lately sold in Belgium at a very high price under the name of assimilable phosphates, raw, finely-ground products. In their circulars they do not say anything about solubility in oxalate of ammonia, and the farmers and even dealers, easily deceived by the ruse, have made large purchases with which the courts of justice will soon be occupied. They supposed they were buying acid phosphate soluble in ammonium citrate as usual with superphosphates and had concluded an advantageous trade, while in reality they were the victims of a fraudulent manuver. As well," says Crispo, "might powdered feldspar be sold as assimilable potash." He cautions the farmers to be on their guard about buying raw ground phosphate, since they know that these can serve in general only for furnishing reserve material for the future and not as a yearly fertilizer for intensive culture, except in special cases which cannot be forseen and concerning which greater experience is necessary.

Joulie, as long ago as 1872, reported as a result of his observations on the assimilability of raw phosphates that it was in inverse proportion to their content of phosphoric acid. In other words, as phosphates approached in composition the soil, the acid was more easily taken up. But this depends again on the physical state, and while it is probably true that as the percentage of acid decreases the phosphate is more easily distributed and hence more easily disintegrated, such may not always prove to be the case; so that it follows that very rich, raw phophates, easily disintegrated, may prove more valuable to plants than very poor phosphates less easily decomposed.

At least, it may be said that the method of determining assimilability by chemical means as practiced with superphosphate may wholly fail when applied to finely-ground raw phosphates. This method, as is well known, is purely arbitrary, and rests upon no sound agronomic principle. The quantity of acid dissolved by ammonium citrate varies with the character of the solvent the physical condition of the body acted on, the temperatures at which the solution is made, and the time which it continues. Any judgment, therefore, respecting the value of such a solution in the quantity of phosphate food which is furnished to the plant is highly empirical. The probable plant food value of phosphates may be approximated by such methods but never truly determined. Actual plot comparative trials through a long series of years must be the ultimate criterion of such estimations.

How completely chemical methods of determining assimilability may fail is strikingly illustrated in the case of basic slags. These slags valued by chemical methods would have but little worth; but experience has shown that the acid they contain is fully as assimilable as that in superhosphates. It is true that in basic slags we have a different form of chemical combination consisting in introducing an additional amount of calcium into the molecule. There is also an excess of lime not combined or in union with silica. In this form the phosphorous acts readily on the growing crop, furnishing the immediate supply of material which modern intensive culture demands. And this leads us quite logically to the supposition that after all we may not have allowed sufficient importance to the influence of mere physical states in securing to the growing crop a proper nutrition.

Midzu Ame, or Japanese Glucose.

There has lately been brought into notice an article of diet which has long been used in Japan which may prove of profit to agriculture in this country. As is well known the glucose of commerce is made chiefly from maize by converting the starch into a mixture of dextrose, maltose and dextrin, known by the commercial names of glucose of grape sugar. The conversion of the starch is effected by boiling it usually under pressure with sulphuric acid. In addition to the sugars above-mentioned there is also formed a small quantity of a bitter product which greatly injures the taste of the sirup. There is also always left a trace of the sulphuric acid, although the greater part of it is removed by treating the thin liquor with marble dust.

Of these sugars the one known as maltose is the sweetest and most palatable, but unfortunately it exists in the glucose of commerce only in small quantities.

In the Japanese glucose, however, the maltose is the chief constituent, amounting to over 50 per cent. of the whole weight of the sirup and to 75 per cent. of the total sugars present. The ame, therefore, is extremely agreeable to the taste and especially valuable for making candies, preserves, etc. It is highly prized in Japan, where it is made in a small way from rice and sold as a delicacy. Samples of the Japanese article have been examined in the Department of Agriculture and found to possess all the good qualities mentioned above.

The process of manufacture in Japan was for a long time kept secret, but it is now well-known. By a slight modification of the method a good ame can be made from Indian corn. The essential difference between the methods of making ame and glucose is found in the fact that the ame is made by converting the starch by a preparation of malt instead of by acid. It is by this means that the sugar maltose instead of the sugar dextrose is produced.

PREPARATION OF MALT.

Soak barley three days, changing the water once in that time. Pour off the water and let stand four days, or until the barley is thoroughly sprouted, keeping it damp meanwhile and occasionally stirring it with the hand. When sprouted dry at first in the sun and finish the drying by artificial means. Remove as much of the chaff as possible by rubbing with the hands, and remove the rest by sifting. The flour obtained resembles Graham flour in appearance. The clear, amber color

and the good quality of the same depend on the careful preparation of the malt. About two-thirds of a pound of malt flour are required to convert six pounds of hominy into ame.

PREPARATION OF THE HOMINY.

Wash thoroughly six pounds of hominy, either of white or yellow maize, by rubbing well with the hand and pouring water over it in a sieve. Add enough water to keep thoroughly moist and set aside in a basket for 24 hours. At the end of this time repeat the washing and steam in a deep sieve over a pot of boiling water for two hours and a half. The temperature of the mass should be about 140° F. The hominy is now poured into a bucket and two-thirds of a pound of malt flour added. After thorough mixing stir in four and a half quarts of warm water at a temperature of 115° F. Cover the bucket well with nonconducting substances and set aside for nine to 12 hours, by which time incipient fermentation will begin. Strain the contents of the bucket through a cloth bag, pressing and squeezing out all the liquid possible. Next strain the liquid obtained as above through a thick flannel bag without applying any pressure. Place the liquid in a kettle and heat to about 200° F. Pour next into a cooling vessel, surrounded with cold water which should be changed from time to time to insure a rapid reduction of temperature. By this method a sediment is deposited, the separation of which adds much to the excellence of the final product. After 24 hours the clear liquid at top should be carefully drawn off. When the stream begins to show turbidity the rest of the liquor should be strained into a separate bowl without pressure. Of the clear liquid there should be about two quarts and of the sedimentary liquor about two and a half quarts. A little over two hours' boiling over a slow fire with frequent skimming will give about two pounds of the first quality and an equal amount of the second quality of Midzu ame. The first quality keeps indefinitely without fermentation or mold. The second quality will mold if kept long in hot weather.

Owing to the excellence of this article as a diet, and for making confections and for use in administering medicine, it is probable that its manufacture on a large scale would prove profitable when its merits are generally understood. A new use for maize may then be created and the farmer's market enlarged to that degree.

Copperas as a Fertilizer.

In discussing the application of basic slags containing a large amount of phosphorus for fertilizing purposes, it has been noted that objection was first made to its use for two reasons: First, that it required so large a quantity of sulphuric acid (oil of vitriol) to make the phosphoric acid available; and, second, that the sulphate of iron (copperas) formed was positively injurious to vegetation. It has already been remarked that these objections were based on insufficient grounds; for it has been found that the slag requires no previous treatment, and, in the second place, if it did the sulphate of iron produced applied in the quantities present in such treated slags could not possibly prove injurious.

Late careful researches have further established the fact that copperas in some kinds of soils acts as a highly-valuable fertilizer. Especially is this true of soils naturally deficient in iron and containing a high percentage of sand. In a pure sand it has been shown that the addition of 1–1000 part of copperas in seven months reduced the loss of nitrogen from 47.65 to 18.36 per cent.; increased the gain in oxidized nitrogen from 1.43 to 10.40 per cent., and ammoniacal nitrogen from 4.49 to 11.22 per cent. When it is remembered that nitrogen is the most expensive of fertilizers (costing about 18 cents a pound), the importance of such observations to the economy of agriculture is at once apparent. A practical application will be found in the observation that in localities where sandy soils prevail, as in Florida and certain parts of Michigan, the farmer who applies either tankage, cotton-seed meal or Chile saltpeter as a fertilizer can increase its value threefold by judiciously mixing it with sulphate of iron—the material known to the chemist as ferrous sulphate, and to the trade as copperas.

From the point of view of practical agriculture the sulphate of iron is also highly useful in fixing ammonia where it is rapidly formed and where, by reason of its volatility, it is likely to be lost. It would prove especially valuable when applied to stable manures, sewerage waters, urine, and other organic substances which, when left to decomposition, give off large quantities of ammonia.

Some of the other compounds of iron, viz, with organic acids, are shown to be even more valuable than the sulphate. The lactate of iron when applied to a typical soil containing clay, sand, organic matter, and carbonate of lime in proper proportions has been shown to almost completely prevent the loss of nitrogen, while it increased the gain in oxidized nitrogen from 7.14 to 22.34 per cent., while it diminished somewhat the increase in ammoniacal nitrogen. Perhaps it may be well enough to mention here that the nitrogen of fertilizers is known under three forms, viz, albumenoid nitrogen, a type of which is the nitrogen in cotton-seed meal; oxidized or nitric nitrogen represented by the nitrogen in Chile saltpeter, and ammoniacal nitrogen, which is sufficiently described by its name. Albumenoid nitrogen before it is assimilable by plants, is first converted into the other forms, and this is accomplished by fermentation produced by a microbe. This fermentation is known as nitrification. The salts of iron in general seem to retard nitrification, and thus, by rendering the nitrogen more slowly available, it probably effects the saving which has been mentioned. Of course it must not be forgotten that by the application of too large a quantity of the material the process of nitrification may be prevented altogether, and in such a case the use of the iron salt would be, of course, hurtful. In the present state of our knowledge it may be safely stated that copperas applied to soils already rich in iron might prove injurious; when applied to ordinary soils it would prove in general slightly beneficial, while it would prove of the greatest benefit when applied with nitrogenous manures on sandy soils.

Live Stock Notes.

It is folly to select a lot of choice young sows, breed them once, and then fat for market. If worthy animals, breed them as long as they give good returns.

Do your hog houses keep the hogs comfortable, or only keep them from freezing? If you do not know, or cannot find out any other way, hang a thermometer inside the building.

When a sow is in good condition at farrowing time there is no difficulty, by proper feeding, in having her increase in flesh while she sucks her litter. But if let run very low before systematic and careful feeding begins it will be found very hard to increase in flesh if she has a large litter.

Some farmers that have no good shelter for sows at farrowing time will find April pigs more profitable than those farrowed in March and stunted from exposure. A stunted and a runt pig are twin consumers of profits. Get rid of them at the earliest opportunity. However, it would be an unkindness to give them to a friend or sell them to an enemy.

One of the most expensive hog sheds the writer ever saw was the most uncomfortable and unhealthy. The floors of the apartments were laid with paving limestone and had the appearance of being always damp and necessarily cold. Pigs would very soon go lame if confined to such a floor. For comfort there is probably no floor that is superior to a properly made earthern one.

It may be best to select the top young sow from the herd each year, or more than one if desired, to make the most speedy improvement, but there are objections to this by the general producer. Selections made each year require a new boar. To secure such a boar as is desired is often an inconvenience and a cost that cannot be easily met, and besides this a separate inclosure must be had for the young sow or sows, which means additional cost for fencing, for they cannot be fed with the old sows and do well. We are satisfied that herds can be improved much faster by yearly selections of the best gilts that are produced and would prefer to follow this plan but for the reasons mentioned. If we could get a suitable male without too much trouble and cost we would not let the other objections to the plan debar us from practicing it. —*Pittsburg Stockman.*

Barnyard Aristocracy.

"No," said one chicken to another, "we don't speak to her. She wasn't hatched from the same lot of eggs that we were."

"Oh, I see. She's from a different set."—*Germantown Telegraph.*

Stable Talk.

It is a very bad plan to have the stable windows directly in front of a horse's eyes, with the rest of the room dark.

Greencastle, Ind., is developing a horse-trade center. The staple breeds are street-car horses, which weigh from 1,100 to 1,300 pounds, and heavier drafts. The prices range $85@$125 for draft horses; $75@$100 for saddle horses; matched teams, $150@$300; for Southern trade, $50@$80.

Some very famous colts have been raised by hand on cow's milk, the most noted of these being George Wilkes. One correspondent writes that he fed a three-year-old colt fresh milk, diluted at first with one-fourth water, and sweetened with a tablespoonful of sugar to a quart of milk. In three days the young fellow took to this sustenance very readily.

The grip has been playing havoc among the fine horses in California.

Missouri is showing up an unusual number of fine trotters. She produced 31 new 2:30 trotters last year.

Feed regularly at fixed hours, and let nothing interfere with this duty. A horse wants his meals just as regularly as a man does.

To Have Good Stock.

Any man can have good stock who really wants to and will give the matter proper attention. All that is needed is to feed what animals he has properly and gradually breed his herd up. The Director of the Cornell Experiment Station sums up the matter in a few words: "The greatest factor in improvement or deterioration of animals is food. A variety or sub-breed can be made in three or four generations if rigid selection and strictly scientific feeding are adhered to from the beginning to the end of the animal's life."

Sheep in Texas.

Reports from Edwards and Kerr Counties, Tex., are to the effect that the long drouth of the Fall and the hard Winter have been exceedingly damaging to the flocks. Sheepraisers report their losses at from 33⅓ to 50 per cent., and say that the end is not yet. Fence cutting has been very prevalent, the clippers being used by the cattlemen of the upper country so that their cattle may have free drifting range and water. It is the old feud between them and the sheepmen. The latter have always to buy or rent and fence for their own protection, while the cattlemen roam and take possession like Arabs.

From five to six years is as long as breeding ewes should be kept.

SUGAR BEET CULTURE.

The Soil, Climate, and Methods Best Calculated for Success.

BY WALTER MAXWELL, DEPARTMENT OF AGRICULTURE.

VERTICAL SECTION OF BEET ROOT, TO SHOW ANATOMICAL STRUCTURE.

THE question of the beet as a great and necessary source of sugar production is taking a firm hold of the attention of our farmers, and also of the capitalists of this country. The vast and daily increasing consumption of the article, and the comparatively small proportion which is being supplied by the sugar-cane and sorghum-cane growers, forces upon our consideration not only the advantage of some other home field for the obtaining of our sugar but the actual necessity of such a field, if we will in any measure compete with foreign growers in supplying our tables.

The growing of sugar from the beet does not step upon the domain of the sugar-cane and sorghum producers. The sugar-cane has its home, in this country, in the most Southern States, with Louisiana as its center. Sorghum-cane has developed a more northern sugar-zone, with Kansas as the most promising field. The beet opens up an entirely new region of sugar production, covering, in a still more northerly direction, Nebraska and South Dakota, and embracing immense selected tracts of land extending east to the Atlantic and west to California. The available field for production is almost without bounds, and the market for the product is as nearly unlimited. The knowledge of the farmer of the right methods of beet-culture, and the assurance of the capitalist that the farmers know how to grow beets, are what are required in order to set up upon a solid basis one of the greatest and best-paying agricultural enterprises that our country has known.

It is, at the start and throughout, important that we understand the main facts and principles which lie at the bottom of

SUCCESSFUL BEET-GROWING.

We must know the kinds of climate, within certain general limits (there is no one fixed climate only which is adapted to growing sugar-beets), and the soils in which the beet, because of its nature, will best thrive. All these facts and principles are set forth in the experiences and results of the beet-growing lands of Europe, and they lay down the lines and methods which we must follow, only being more or less modified as the different conditions of our climate and soils may occasionally require.

A temperate climate is the first essential in beet-culture. Great heat or great cold and extremes of wet and drouth are unfavorable. During the months of April and May the temperature of the air should range from 45 to 55 degrees, in a generally moist atmosphere, and with occasional rains, in order that the soil may be moist and warm enough to germinate the seed. In the months of June and July, which form the second period in the development and season of the beet, and during which time the main growth of the root and leaves takes place, the thermometer should move between 60 and 70 degrees, with the same moist air and occasional steady rains as during the germination period. August, with a temperature of 60 degrees; September, 55 degrees, the air mellow and moist, and without rains, compose the most favorable conditions of the third period of the beet's development, for it is during this period that the forming and storing of the sugar takes place, and steady, moderate warmth and moist nights, without rain, are in the highest degree conducive to that end. The climate on the sea, especially with an easterly exposure, is not suitable, as it is generally too cold, wet, and without enough sun. Likewise very high lands and hilly districts have unfavorable climates, because of exposure to cold blasts and storms. Most especially is it desirable that the climate shall be temperate and

FREE FROM VIOLENT VARIATIONS OF HEAT AND COLD,

and severe spells of rain and drouth. The climate of the beet regions in France and Germany agree generally with these conditions.

In considering the soils adapted to the growth of the sugar beet, we are persuaded that there are only a small number which must be promptly rejected as unfit for that use. Specifically, there are three distinct soil varieties in which it is impracticable to grow sugar, viz., light, dry sands; dense and impervious clays, and bog soils, or such as are full of undecayed vegetable matter. It is possible to grow beets in the two latter soils, but not with a paying content of sugar. It is not advisable to plant beets in any new soil; it being much better practice to crop such soils for a few years with corn and small grain, until the chief part of the decaying vegetable remains has been gotten rid of. This applies to woodlands and prairie soils which have just been cleared and broken.

THE SOIL IN WHICH THE BEET THRIVES

and luxuriates is a deep loam, composed of about one-third sand; of a porous and friable texture, and with a dark complexion, which will gather up the heat of the sun. A deep and rather light soil will let the tap-root of the beet strike down with little resistance. Porousness of the soil drains off rapidly excesses of rain in a wet time, and, on the other hand, admits of the rising of moisture from the under soil to the surface in a dry season. Excellent sugar-beets have been grown in soils which possess the qualities of which we have spoken in only a moderate degree. We have seen beets of average size and sugar content, and with sound and remarkable keeping properties, grown upon a soil of a decidedly more clay than sand nature. Where the natural quality of the soil is weak, however, as in the case last mentioned, it must be made good by artificial drainage and special preparatory cultivation. The nearest approach to the previous character of soil described, as being the best adapted to the nature of the beet, will give the most sure results. And such a soil is not only sure of giving the highest money-value return, but the highest return at the lowest cost.

In coming to a consideration of the methods of sugar-beet culture, we must, in the first place, free our minds of all general and slip-shod ideas and ways of cultivation which obtain in the growing of grain and corn. The sugar-beet is a special plant and requires a special mode of culture and management. It is not a simple work to get a crop of beets. It is an undertaking requiring special knowledge, care, and application, to grow a good crop with a paying content of sugar. This matter of the absolute necessity of experience and good cultivation, in order to obtain a paying yield of sugar per acre, was well expressed by Mr. Tisseraud, who is the permanent Secretary of the Department of Agriculture of France, in a conversation that we had with him on sugar-beet raising a year ago in Paris. He said, in reply to a question:

"SUGAR-BEETS PAY BETTER

than any other agricultural crop for good cultivation, and they can only be made to pay where 'high farming' is practised. If you grow beets, grow the best that high culture can produce. Unless you farm well, have land in high condition, with liberal fertilizing and abundant labor, don't attempt to grow beets. Grow wheat, potatoes, or what you like, but don't grow beets."

A plan of cultivation is regulated by the nature of the soil, and particular soils will require considerable modifications of what we shall consider a general method of culture. Given, however, such a climate as was previously described, and a soil varying in no important feature from the typical soil advised, we may endeavor to give a system of farming the sugar beet crop, which has been found to yield ample and sure results.

The beet crop will follow with the best advantage either a crop of potatoes, peas, or any similar growth. Grain crops are not quite such good precursors of the beet for other reasons, but they do allow of abundant time for the Fall cultivation and preparation of the soil, which is not the case with corn, the latter often being upon the ground until it is too late to plow and get the land laid up ready for the Spring. Land which has been under wheat or oats is usually cleared of the crop by August. If such land is full of weeds a good preliminary act is to plow lightly to a depth of three or four inches, and thus get rid not only of the weeds but of any seeds, which will germinate if they are turned under and not be ready to grow in the Spring. If the late Summer is dry the land may be too hard to plow, as we have stated. After the early Fall rains deep plowing should be done. Fall plowing of the land intended for beets is advisable with all kinds of soils, and excepting very light and sand soils, it is absolutely necessary. That true pulverization of the soil which is required for the seed-bed of the beet is only possible of attainment when the land is laid up and exposed to the action of the Winter frost.

DEEP PLOWING IS NECESSARY

to the growth of the beet. The soil must be cultivated to a depth of 15 inches. This is done by plowing with a common plow nine inches deep, and following in the same furrow with a subsoil plow which will loosen the under soil six more inches without turning it over, thus making the whole soil quite loose and porous to a depth of 15 inches. When farm-yard fertilizers are applied it is advisable to do so before the Fall deep plowing, as the great object of Fall plowing is to avoid heavy cultivation of the land in the Spring, which will damage the chance of securing a fine seed-bed, and the putting on of manure in the Spring would involve another plowing; but fertilizing with farm-yard manure in the Spring is particularly bad for the beet. It unexceptionally lowers the yield of sugar, even if the weight of beets is good. In the case of new soils the application of crude fertilizers is not necessary and is usually damaging, and where older lands are more or less exhausted by long cropping and require farm-yard manure, it is advisable that the fertilizer be applied in a good dose to the preceding crop, by which system the frothy part of the manure is used up by that crop and yet enough is remaining in the soil to meet the needs of the beet without retarding the normal formation of sugar.

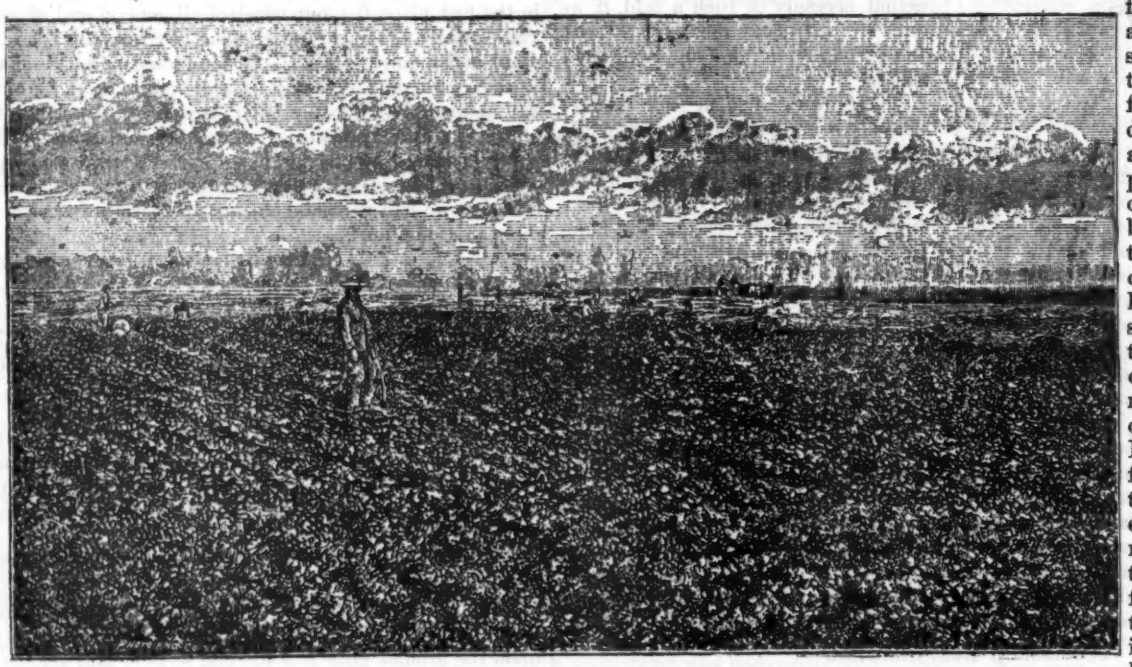
SPRING CULTIVATION

commences as early as the middle of April, and where the land has been plowed and subsoiled in the Fall, in the way we have already stated, there is nothing to be done but to prepare the seed-bed and put in the seed right away. The soil, after the Winter frost, lies as one mass of fine mold, and no implement must be used in preparing for the reception of the seed that will go so deep as to work up coarse

earth from below and let down the fine surface earth. Where the soil requires so-called artificial fertilizers, such as superhosphates, some growers apply the same at the time of preparing the seed-bed. If, however, the fertilizer is not of a very soluble character it is better to apply it at the time of Fall plowing, when it is put down deep into the ground and made available for the beet root in its later stage of growth. Mr. Vilmorin, the great beet seed grower in France, adopts the latter method, and in the Spring, if the young beet plantlets do not appear very strong after they have been thinned out, he applies a second small dose of superphosphate and nitrate of soda in equal parts. After the ground has been made quite fine and level by harrowing and rolling, the seed is put in with a hand or horse drill and the roller applied again (not if the ground is very moist), the last rolling compressing the surface of the land and hastening germination by inducing the under moisture to come to the surface. The distance at which the rows are placed from each other depends on the condition of the soil. In a soil of average condition, 18 inches is the distance. In a poor soil, 20 inches, and in a rich one, 16 inches are good distances between the rows. From 15 to 20 pounds of seed should be planted per acre. As soon as the young plants are visible in the row the ground between the rows should be hoed to stop the growth of weeds, which from the first, and right along, must be kept down. Thinning out the plantlets commences when they have put forth four broad leaves, and requires very great care. The plants are placed, as nearly as possible, six inches apart in the rows.

WHEN THE THINNING-OUT OPERATION,

which is the most important one in the process of beet culture, is complete, the further acts of cultivation consists of moving the ground between the rows frequently with a horse hoe, which not only destroys the weeds but also lets in the air and prevents the escape of moisture by keeping the surface of the soil loose. The weeds are removed from between the plants with the hand hoe, and finally, when the plants have become too large for further work to be done, or for the weeds to grow, a horse hoe with particular shares is run along between the rows and the loose earth put up close to the plants, after which they are left till the season of harvesting.



A Field of Sugar Beets Near Alvarado, Cal.

The weight of beets per acre, and the content of sugar in the beet, depend not only upon the soil and the cultivation, but also upon the kind of beet planted. Certain varieties are heavy croppers and give a great weight per acre, but they may not be so rich in sugar. Other varieties give less tons per acre but more sugar to the ton, and the latter are preferred by the factory owners, though not necessarily by the growers. There are, however, a few established standard varieties which yield a large weight of beets and contain an ample per cent. of sugar; and these varieties, such as the "Improved Vilmorin," "Dippes Kleinwanzleben," and the "Desprez," are adapted to all soils and climatic conditions within the limit, of which we have previously spoken, and are everywhere grown.

THE HARVESTING OF THE BEETS

is a costly operation where labor is dear, and it requires great care. The best system, both from the consideration of the factory value of the beet and the cost of getting up and shipping to the sugar house, is to raise the beets and haul them directly. The duration of the manufacturing season, however, and the danger arising from frost if the beets are left too late in the ground, make it necessary to get up some portion of the crop and store it, the beets being protected in small heaps or in silos, which are constructed for that use, and conveyed to the factory in the latter part of the manufacturing campaign.

THE WHOLE COST

of producing an acre of beets, including the delivery at the factory, is a problem not admitting of an answer or solution in one phrase. The expense of the crop is regulated by the value of the land, the cropping condition of the soil, and the price of labor. We have known of examples of production where the cost per acre was as low as $30, and again as high as $80. With very cheap land, which likewise does not require any fertilizers, the sole cost of the crop is the sum of the labor bill, excepting the item of seed. In other circumstances, however, where the rent of the land and the cost of fertilizer's aggregate from $30 to $40 per acre, the expense of production is essentially high. When walking over the beet farm of Mr. Dufay, which is located some 40 miles north of Paris, France, that gentleman said to me: "My rent is $10 per acre, and the cost of fertilizing for this crop was $28, and the total cost of the crop will be exactly $80." The general cost of production runs between $40 and $60 per acre, however.

THE WEIGHT OF BEETS

per acre runs between limits of eight and 20 tons. Where the yield falls below the minimum stated, it must rank as a failure, and if it exceeds 20 tons per acre it is unusually large. The sugar content of the beet may be spoken of as varying between 10 and 18 per cent., and a less or greater richness than what we have stated need not be spoken of.

Now, if the weight of beets varies from eight to 20 tons per acre, with a mean price per ton of $5, which is less than is frequently paid in Europe and much more than in this country, we see that the money value of an acre of beets can vary between the figures of $40 and $100. The actual value of the beets per acre already spoken of as belonging to Mr. Dufay was close upon $100. The value of the beets grown upon the United States Government Experiment Station in Nebraska, taken at $5 per ton, was $108 per acre; the market value, however, did not exceed $88. The average value per acre of the beets grown by farmers in Nebraska, and in the other beet-growing States, we are not able to estimate, in the absence of more reliable data which are required to that end.

From the examples and general data that have been given we obtain some idea of the great scope of possibility which the sugar-beet crop places in the hands of our farmers. We see what a field there is, by the study and perfecting of the methods of culture, for increasing the productiveness of our lands and the values of their products; for it is not only in the value of the beet crop that the gain is to be observed. The increased production of the land in all crops is a consequence of the high cultivation necessary to secure a crop of beets. In many instances the yield of wheat per acre in France has been raised from 30 to 50 bushels by the intensive culture given to the beet. It must not be unseen, however, that it is such high farming that is essential to the end. With the introductiou of sugar beet growing we must pass on from the natural system of farming to one of the most intensive culture; and by the advancement we shall reach as tandard of agricultural values of which, at present, our farmers hardly conceive.

Irrigation in Montana.

In Montana there are 3,706 farms that are irrigated, out of a total number of 5,664. The total area of land upon which crops were raised by irrigation in the Census year ending May 31, 1890, was 350,582 acres, in addition to which there were approximately 217,000 acres irrigated for grazing purposes. The average size of the irrigated portions of farms on which crops were raised is 95 acres.

The average first cost of water rights is $4.63 per acre, and the average cost of preparing the soil for cultivation, including the purchase price of the land, is $9.54 per acre. The average present value of the irrigated land of the State, including buildings, etc., is reported at $49.50 per acre, showing an apparent profit, less cost of buildings, of $35.33 per acre. The average annual cost of water is 95 cents per acre, which, deducted from the annual value of products per acre, leaves an annual return of $12.01 per acre. The above refers only to tilled land on which crops were actually raised by the artificial application of water during the year 1889, and not to all the lands cropped, the stock ranches irrigated merely for grazing purposes being mentioned only as to their approximate total area.

Straws.

Georgia farmers are beginning to think that tobacco is a better crop than cotton. Very fine varieties of tobacco can be raised in the State.

Louisianians are rejoicing over an immense rice crop.

The bees of the United States are busy to some purpose. They made over $10,000,000 worth of honey and wax last year.

The North Dakota Commissioner of Agriculture reports that last year there were 2,863,502 acres of wheat in the State, and a total production of 64,713,328 bushels, or an average of 22.58 bushels per acre.

An electrician says the time is rapidly approaching when a ship will be able to telegraph to either shore of the sea she is traversing without cable or any direct connection.

THE GARDEN.

Pluckings.

Wood ashes are usually rich in potash. Potash is invaluable for most vegetables and all small-fruits. Therefore, jealously save all your ashes for the garden.

A light, dry, sandy soil is best for early tomatoes. Seed should be sown in hot beds in February and transplanted in April, when weather will admit.

Blackberries and raspberries should be thinned out while growing. All useless canes should be cut off before they absorb too much of the strength of the plant. The work should begin as soon as the growth shows which are the strongest and which the weakest canes. The latter should be cut out remorselessly.

A good collection of hardy pinks should not be neglected. No flower gives more satisfaction to the grower. Other flowers may be good for variety or fashions, but roses and pinks are always favorites, and have no superiors nor even equals in the flowery kingdom.

Roses need constant pruning and shortening. The more stocky the growth the more vigorous and beautiful the flowers.

The best time to plant beans is from the 5th to the 10th of June. The Marrowfat, the Navy, and the medium are the best varieties. They ought to yield from 20 to 40 bushels to the acre.

Sweet peas should be planted as early as possible.

Brussels sprouts are cultivated the same as cabbage.

Kohl rabi may be grown in drills or transplanted like cabbage.

In transplanting remember that plants need shade on bright days until they get started.

The stem end of the potato is the poorest for seed. It should be cut with at least two eyes.

The new English gooseberry, introduced from Canada, is much superior to the native.

Where there are undesirable trees or shrubs, which it is desired to have killed so completely that they will not sprout again, June is the time to cut them down. The sap that was stored up from the previous year will have been expended and none new will have been prepared, and life ends with the chopping away of foliage.—*Practical Farmer.*

Prof. Bailey says that tomatoes do not mix in the field.

Some asparagus grower claims that an improvement of 50 per cent. can be made in the asparagus bed by selecting two-year-old plants that bear no seed. These are males, and the shoots from them will be earlier and larger.

Protecting tomatoes with bags has been tried with good results.

Squashes want light, sandy soil, with abundance of manure placed directly in the hill with the seed. But two plants should be left in each hill, and they be given about 100 square feet of ground to run over. They can thus be made to produce five tons to the acre, worth all the way from $6 to $10 a ton.

Pumpkins are splendid food for cattle and hogs, and save a great amount of costlier rations.

Grapevines on trellisses about dwellings are often allowed to grow so much to top that but few fruiting branches are at the base. Such vines should be cut down. No matter how old a vine may be there are always dormant eyes which grow when tops are cut away. Cut down to within a foot of the ground.—*Practical Farmer.*

Strawberries New and Old.

In a report from the Horticultural Department of the New York State Experiment Station are recommended for a kitchen garden Bomba and Haviland for early, Burt's Seedling and Daisy for medium, and Crawford and Middlefield for late. These planted in the order named will give each alternate row of pistillate varieties, insuring perfect pollinization. Several of the older varieties will give good satisfaction, as Bidwell, Charles Downing, Crescent, Cumberland, and on heavy soil the Sharpless. The Belmont is called a showy berry when fully ripe, firm, and of fine flavor; with good culture it yields an average crop. Bubach is a very promising, rank, growing late variety, but quite soft. The Haviland is pronounced too soft for a shipping berry, and the May King is classed as an acquisition to a home garden. It ripens early and continues through long season; medium large and firm, quality of the best, vigorous growth, free from rust. Numbered with the new varieties, as yet but partially tested, Michel's Early is named as very promising. The Burt is called a good berry for wet soils. The Cloud is a good shipping variety. Parker Earle continues to be a favorite.

The American Farmer of 1819.

EDITOR AMERICAN FARMER: No. 1, Vol. 1, of the oldest agricultural papers in the United States made its first appearance April 2, 1819. At that time there were but 3,600 postoffices. Now there are more than 64,000. The name of the publisher of the AMERICAN FARMER, J. S. Skinner, Postmaster of Baltimore, appears only incidentally, and is appended to a paragraph announcing that a "special mail would be made up and sent by the American packets, which sail from New York for Liverpool on the 10th of every month in the year."

In point of size the AMERICAN FARMER was about one and a half inches shorter and half an inch less in width than the present issue. It was an eight page, three column paper, and presented a very creditable appearance. The editorial announcement appears on the fifth page, instead of the first. The advertisements were exclusively those of Agricultural Seeds, a Farmers' and Gardners' Hive, and a Treatise on the Cultivation of the Peach, by Joseph P. Casey; and "Nature and Reason Harmonized" in the Practice of Husbandry, by John Larran, of Baltimore.

In the prices current we find the following quotations: Sugar (white), per pound, 19 cents; sugar (brown), per pound, 13 cents; Tea, per pound, 63 cents and $1.75; wool (merino), per pound, 80 cents; wheat, per bushel, $1.50 and $1.60; corn, per bushel, 37 cents; salt, per bushel, 70 and 75 cents.

The leading article on the first page was a five column one on the Culture of the Ruta-Baga (to be continued). In the miscellaneous department we find the following: London, Jan. 26.—"Accounts from both Sweden and Norway exhibit the unexampled fact that down to the beginning of the present month there has been neither frost nor snow in these remote and hitherto inhospitable regions; but that the primroses blossom, and the gooseberry trees are green under the 59th degree of latitude." Vol. 1 throughout is of special interest as a book of reference, as the current volume is likely to be. The vital topics, such as grasses, rotation of crops, restoring fertility, were as popular subjects as they are to-day.—W. M. K.

YOUNG OAKS.

Treatment of Two Years' Transplanted Trees.

When oaks remain undisturbed in nursery lines more than two years, it is difficult to transplant them into the woods with safety. Many a failure in the planting of oak woods is due to the circumstance that the plants, while otherwise good, were deficient in fine fibrous roots. As is well-known, when the oak has been transplanted two years, it then, if left unmoved in the same place, begins to make tap roots only, which descend deep into the subsoil, and the top begins to grow with an exuberance corresponding to the progress of the tap-root. The plants, in short, greatly improve in appearance the third season after being transplanted, but they become less fit for transplantation to their permanent place in the woodlands.

This peculiarity of the oak has led to the adoption of the practice in home nurseries of lifting and replanting the plants when they have stood two years in the same place as a preparation for their being planted out permanently the following season. It is a very beneficial practice as applied to the oak, and would be attended with equal advantage in the case of beech and all other forest trees which have made two years' growth in the same place, ash alone perhaps excepted, its natural tendency to multiply its root fibers rendering it a perfectly safe subject to transplant at the end of three or more years, if it has not been starved for lack of space.

The transplanting of trees in this case is not attended with an alarming drain on the labor if the following course is adopted: Take an opening out the depth of a spade close to the outer line of trees. Then lift the latter, and cut back the tap roots, and place the plants in the newly-made opening, and turn the earth whence they have been drawn over on their roots. If the soil is moist, they need not be trodden, but should have all their roots covered; nor is it necessary to spend time on setting them precisely upright, or as they were in their previous position. Weak and worthless plants should be rejected as the work goes on. The plants are thus transplanted on the same space line by line. They will make very little top growth the following season, but will have immensely improved in the character of their roots. When finally planted out, their success, as compared with plants which have not been so treated, will be found very marked.—*North British Agriculturist.*

Man Not a Vegetarian.

The entire human anatomy would have to undergo a change to make man an herbivorous animal. The digestive apparatus of the vegetable feeders is far more complex in arrangement than that of carnivorous creatures or of human beings. The stomach of a cow, for instance, is arranged in four parts—four stomachs, in fact—through each of which the food must pass before returning to the mouth to be still further masticated before it can be digested. Flesh-eating animals have but one stomach like a hollow sack. One killed three or four hours after it has eaten a full meal will be found to have an empty stomach, while in the case of an ox or sheep, at some length of time after eating, the process of digestion will be found to have hardly finished its first stage. It is apparent from this, if from no other evidence, that human stomachs, especially of weak or nervous persons, should be saved the labor of converting vegetable substances into a form fit for assimilation so long as they can be supplied with animal food.—*Hall's Journal of Health.*

Milk for Insomnia.

Persons troubled with insomnia, nervous starting from sleep, and sensations of falling, can often be cured by limiting themselves for a time to a diet of milk; I mean milk and nothing else. An adult requires about three pints or two quarts daily. Moderate drafts of water aid the digestion of food by making it soluble besides having a tonic effect; but hot water should never be taken into the stomach, for nothing is more relaxing to it.—*Hall's Journal of Health.*

"Enlarged and Much Improved."

THE AMERICAN FARMER, which claims to be, and probably is, the oldest agricultural paper in the United States, formerly published in Baltimore, Md., has recently changed hands, been removed to Washington, D. C., and comes to us from its new place of publication much enlarged and greatly improved. We would add that, besides being one of the oldest journals of its class, it has the merit of being one of the best, which is far better. We welcome it among our exchanges, and hope it may meet with the liberal patronage which it deserves.—*Christiansburg (Va.) Messenger.*

His 70th Birthday.

Dr. George Vasey, Chief of the Division of Botany, Agricultural Department, celebrated his 70th birthday, Feb. 28, by a lunch to his assistants and clerks. He has been in the Department for 20 years, and during that time the force under him has grown from a single clerk to 26 clerks, collectors, and specialists. He has in this time enriched the Department with the largest and most valuable collection of plants in the whole country.

THE APIARY.

Busy Bees.

It is suggested that the next meeting of the North American Beekeepers' Society be held in Washington at the time of the National Encampment of the Grand Army of the Republic, Sept. 19, next. A great many wives of veterans are beekeepers, and this would be an inducement to them to come on with their husbands.

Flat covers for hives seem to have the preference among beekeepers, though the gable-roof has many strong advocates. They want them covered with tin or roofing-steel, and carefully painted as often as they need it.

H. L. Lynn, Glenville, Ky., is sure that bees think; that they reason from effect to cause, and use judgment in deciding which of two ways is better.

Ernest R. Root is sure that a bicycle is a better conveyance for a beekeeper than a horse and buggy.

Artificial Swarming.

If beekeeping is undertaken as a special industry, artificial swarming must take the place of natural swarming.

Much is said and written about following the natural plan of bees. The natural plan should be followed as far as possible, but it has limits, as the natural plan of every living thing has that is subject to man. Long experience shows that while natural swarming, under some circumstances, is advantageous, yet oftener it is not advantageous.

Every beekeeper knows that bees, if they have their own way, will swarm when there is no apparent reason, or if the cause be apparent, it is not to the advantage of the beekeeper. If bees will swarm in May or in the early part of June, good results may come. Even then there is an uncertainty about queens, their fertilization, return to the hive, etc.

The natural plan for bees is restricted already, and we may go a little further, and interfere with their swarming. It may not be possible to prevent natural swarming in every case, but we may come very near to "total prohibition." This is the plan worked out by actual experience.

When the brood chamber is full, when the queen has utilized all space, or nearly all, take out one or two combs in the center of the brood nest, and replace with sheets of foundation or empty combs. In some cases foundation is better than comb, because the new wax attracts the bees, and the work in drawing out seems to satisfy them, gives them something to do, and stays the swarming fever. The two combs removed with the clinging bees make a nucleus of a new colony. If the nucleus is to raise its own queen, then care should be taken that the combs removed contain unhatched eggs.

On the hive from which the combs were taken, place another body or second story filled with empty brood combs, if the object be extracted honey, or with empty section combs or foundation if the object be comb honey. The empty combs in the brood chamber give the queen laying room, and the enlargement of the hive, together with the enlargement of the brood chamber, "swarms" the colony—at least arrests natural swarming for the present.

As a further precaution the drone trap may be adjusted to the entrance, and there remain during the season. When the brood chamber is full again repeat the operation, and add to the nucleus already started or begin a new one. In this way may be taken in a season from the colony 10 frames of brood and clinging bees, equal to a colony or the natural increase. And this has been done without disturbing or weakening the colony. It may be said that if the colony swarmed naturally in the right season, there would be two productive colonies instead of one. But the one colony will produce under this system as much as, and probably more, than two colonies. If the apiary contains at least 10 colonies, then there would be 10 frames obtained from the first swarming. The bees on these, united at once and given a queen, make a strong colony. At the next swarming another colony is obtained, and this colony, the second, may be early enough to gather surplus honey. This can be done, and has been done, but a product from the colonies thus made is not taken into account. The most that is expected of the nucleus colonies is that they build themselves up for service the next year.—Geo. A. Stockwell in *Cultivator and Country Gentleman.*

Eye Troubles.

Inflammation of the conjunctiva or membrane which shields the front of the eyeball from the air and takes the rub of the eyelids is indicated by the glued state of the eyes in the morning, and more especially by their bloodshot condition, the vessels being bright red in color, and winding about in great irregularity, with no discernible order or plan. Eyes are sometimes inflamed by being held too near the heat of a lamp, and relief may be obtained by shading the eyes with any old scrap of green paper, such as handbills are sometimes printed on. Weakness of the ciliary muscle, or an error of refraction, may be the cause of the evil. A refractive error might be corrected by proper spectacles; and if the aching has increased under the use of the various glasses which have been tried, it points to a refractive error wrongly corrected as one cause of the trouble. Test each eye for astigmatism, and for long or short sight. Get properly suited with spectacles focussed for reading, writing, and indoor work. And for the inflammation wash the eyes with Goulard water; also drop a few drops of the following lotion in the outer corner of each eye two or three times a day: Hydrochlorate of cocaine, 8 grains; boric acid, 3 drachms; glycerine, 1 ounce; elder flower water, 6 ounces, and water to make 8 ounces. Cold water should not be used for bathing the eyes when inflammation is present. Tepid water may be used night and morning, keeping the eye carefully closed the while.—*Hall's Journal of Health.*

An Ultimatum.

A gentleman who contemplates the purchase of a certain piece of real estate in this vicinity, becoming somewhat impatient with the real estate agent who was negotiating the sale at his tardiness in obtaining the abstract, impatiently exclaimed: "Now, here, I want you to hurry up and get an abscess to that land, and no more fooling about it."—*Salem (Ore.) Irrigator.*

THE EPIZOOTICS AFFECTING SWINE.

Characteristics and Effects of Swine Fever, Swine Erysipelas, and Swine Plague.

The London (Eng.) *Journal of Comparative Pathology and Therapeutics* contains an important clinical article on swine erysipelas, the *mal rouge* of French veterinarians, by the editor, Prof. M'Fadyean. The disease is caused by a minute bacillus found in the acute stages in great numbers in the blood, first discovered by Lœffler, and since investigated by Pasteur and Dr. Bang, of the Veterinary College, Copenhagen. The disease is perfectly distinct from swine fever. It is communicable to rabbits and sheep by inoculation. Following up the observations of foreign experimenters, Prof. M'Fadyean has examined the bodies of pigs sent him from various parts of England, and finds on the valves of the heart and elsewhere vegetative growths from which the distinctive bacillus has been obtained and cultivated.

Prof. M'Fadyean concludes his article by describing briefly the chief distinctions between the three recognized epizootic diseases of pigs—swine fever, swine erysipelas, and swine plague.

1. *Swine Fever.*—Attacks pigs of any breed or age, but is most fatal in young animals. Has an incubative period of eight to 10 days. Discoloration of the skin is common, but not a constant symptom. Generally attended with gastro-intestinal disturbance (constipation or diarrhea), hurried respiration and cough. Seldom fatal within less than a week, and often lasts for two or three weeks or more. Save in very acute cases bowel lesions are constant, and pneumonia is almost equally constant. The bowel affection may take the form of a diffuse diptheritic inflammation of the mucous membrane, sometimes of the small, generally of the large, intestine. In more chronic cases the mucosa of the large intestine is beset with well-defined "ringed" patches of necrosis—the so-called "ulcers," or with nodular elevations (buttons), covered with necrotic mucous membrane. The lung lesion is a catarrhal form of pneumonia, frequently attended with larger or smaller hemorrhages into the lung tissue. The spleen as a rule is not notably enlarged.

2. *Swine Erysipelas.*—Coarser breeds (Yorkshire included) are least susceptible; generally attacks animals from three to 12 months old. Older pigs are sometimes attacked, but sucking pigs seldom or never. Incubative period, three to four days. Discoloration of the skin a very common symptom; sometimes confined to the under surface of the body and inner surface of the limbs; sometimes general, occasionally absent; at first bright red, later bluish or brownish red. Illness sets in suddenly, with high fever, great depression, weakness, paralysis of the hind quarters, and sometimes severe nervous disturbance. Death generally occurs on the second or third day of illness, sometimes within 24 hours, occasionally after a week or even months (from chronic endocarditis). Is readily spread by mediate and immediate contagion. Fatality, 50 to 75 per cent., or even more. Lesions revealed at post mortem are: Enlargement of the spleen; acute inflammation of the gastro-intestinal mucous membrane, with minute hemorrhages into the same; parenchymatous inflammation of the liver, heart, and muscles; hemorrhagic nephritis. Lungs in general free from pneumonic lesions, but congested; and no diphtheritic inflammation or formation of "ringed" ulcers in the large intestine.

3. *Swine Plague.*—This disease was first differentiated as a specific affection in Germany by Lœffler and Schutz (Schweine seuche). Accurate information concerning relative susceptibility of different breeds and ages and period of incubation is not available. Symptoms during life are moderate fever, redness and swelling of the skin, cough, and disturbed respiration. The primary and essential lesion, according to Shutz, is inflammation of the lung, followed by necrosis of the hepatised portions; and, if the animal survives, by caseous degeneration of the necrotic areas. Spleen, normal or only slightly enlarged, no gastro-intestinal lesions, sometimes fatal within 24 to 48 hours, sometimes has a duration of eight days, or even weeks.

A Way to Raise the Price of Wheat.

J. H. Johnson, who owns a 50-barrel flour mill at Blakely, Minn., has printed and circulated thousands of a circular letter, the burden of which is to show that the farmers of the Dakotas and Minnesota have lost $28,000,000 on the wheat of the last crop sold up to the 8th of December, 1891.

He then proceeds to show the farmers their folly in not building their own mills and thereby securing $1 a bushel for their wheat, with a ton of feed per 100 bushels, together with some minor advantages. Any community that can deliver 75,000 bushels of wheat, he says, can thereby keep a 50-barrel mill running for a year and the mill can be built for a modest $7,000.

That, Mr. Johnson says, will secure $1 a bushel for every bushel of wheat raised by the shareholders. Mr. Johnson would allow 50 cents a barrel for the handling of the flour, and the agents he would send abroad to dispose of it would be the farmers' sons.

Rich Asparagus Bed.

Gardeners are aware that the asparagus is a strong feeder. A correspondent of *Gardening Illustrated* describes the process by which he secured a very rich bed, with great success in the growth. A pond in which leaves and rubbish had accumulated was cleaned out, and the contents placed near the intended bed. It was turned over two or three times, and the ashes from a rubbish heap mixed with it, with a portion of manure, during successive months. It formed a bed a foot and a half high. Early in Spring the bed was planted, the plants being two feet apart and three feet between every row. It would have been better had they been at least three or four feet. As the roots are found to extend several feet, they want more room. A biennial dressing of fertilizers is given in March or April. When cutting, the owner is careful to cut off all plants, big and little, as uncut weak plants prevent strong ones from pushing up. The stalks are not cut off in Autumn until quite dead.

In European Russia there are 223 beet sugar factories.

FOUND HER MATE.

Winning a Good Husband in Far-Off Hindustan.

I.

PATIENCE was the plainest—one might almost say ugliest—of the entire cargo; and there were 17 of them. Poor Patience Owen! The cargo consisted of real live English women, sent out to become the wives of the bachelor missionaries of Shikarore. The Trincomalee had brought them out from Liverpool, and they were now coming into harbor at Khansal, chaperoned by the wife of a leading minister who was coming out to rejoin her husband, and all agog to espy the first aspirants to their hands. The principle upon which the brotherhood acted on these occasions was that of "first come, first served," and, lest some ill-favored maiden should be palmed off upon them through the carelessness of a proxy, a good number of the missionaries had managed to get away from the scene of their labors so as to personally select upon their arrival at Khansal the future partners of their joys and sorrows. If once a young woman had been told off to an absentee, and a suitable escort found for her to the gentleman's neighborhood, objections were useless, and the very next day she would be married to him from her escort's house.

Speculations, conjectures, even dreams, had formed the staple of the young ladies' conversation on the voyage out; needless to say whither they tended. Were not the 17 coming out to be married? What harm then to give the reins to imagination and tongue on the subject of their futures? The prettiest aimed high, for of course on so sketchy an acquaintance the charms of the outer women would principally attract the suitors, and the most engaging in appearance would be the first chosen; though indeed the passing triumph thus obtained might well be neutralized by the possible undesirability of the "first come." If a hard-featured and elderly person be ever so capable a housewife, and a noted teacher of Sunday-schools be afflicted with a cast in her eye and a bad complexion, men (and missionaries are also men) will fail in properly appreciating their good qualities; weakly preferring some better favored sister, ignorant, perchance, of the best recipe for strawberry jam—not after all of overwhelming importance in the East—or the names of the Kings of Israel and Judah. But Patience! She was small and a little bit lame. Her poor little face had a pinched and half-starved look; her little gray linen dress was skimpily made; her hair was turning gray, although she was only 25; and, from having always been the butt and fetish of her own family, she had grown stupidly awkward, apt to blush and to knock things over in her nervousness, afraid to say what came into her head lest she should be laughed at, and, therefore, remaining silent, shy, and apparently dull. She was far too much afraid of the children to be an efficient Sunday-school teacher, and her mother was a notable housekeeper, who had tolerated not so much as an offer of help from clumsy Patience. But she could sew neatly, and would no doubt darn her husband's socks to perfection; her voice had a pleasant tone whenever she dared to use it; and she was the most unselfish creature upon earth, with a heart like an artichoke and the courage of a mouse. She had been shipped off to the East because she was no longer welcome at home. Her mother was dead, and her brother, now the head of the family, and his young wife despised her and looked upon her as an encumbrance. She was not very strong-minded; and, when the minister under whom they sat suggested a means of providing for poor little Patience, her relations showed such eagerness to seize the opportunity that is was impossible to withstand them, even had she had any reasonable objection to offer, which she had not. So here she was, standing, one of 17, on the deck of the Trincomalee.

"Cheer up, my dear," said her neighbor, a buxom damsel, unafflicted with nerves and notions. "One good thing, there'll be no mothers-in-law, at least none to speak of. For my own part, I would not object to marrying a foundling; I don't hold with taking on a pack of your husband's relations for your own."

"Ah," sighed Patience, "perhaps you are right. It isn't always too easy to live at peace with one's own family, let alone someone else's."

"True, my dear, for such as you, who couldn't hold your own with a daddy-longlegs. But we aren't all made alike, thank God."

With which pharisaical observation she turned away, leaving poor Patience to reflect upon her shortcomings. These reflections had not materially improved her case before the ship came to an anchor, and her thoughts were diverted, not too agreeably, from their channel by the sight of swarms of scantily-clad natives jabbering and scuffling in the shore-boats alongside. None of the candidates had come out to the steamer, but awaited the arrival of its fair freight at the shipping-office. Thither the gallant 17 were duly conveyed under Mrs. Abbott's maternal eye; and indeed no better guardian could have been chosen than this shrewd but kind-hearted woman, whose task had been no sinecure since she left Liverpool a month before. Each gentleman, in the order of his arrival at the office, had been presented with a numbered ticket, No. 1 having been secured by a small, pale, patient missionary, whose first wife had been similarly purveyed, and who knew exactly how to proceed on this the second "auspicious occasion." He sat quietly on a packing-case, with his ticket tightly clasped in his hand, apparently unconscious of the envious glances cast upon him by Nos. 2 to 17. Seven of the number were ministers and the remainder proxies, who were distinguishable from their clerical brethren by the informality of their attire, whereas the missionaries were decently and unsuitably habited in black and wore chimneypot hats. Mrs. Abbott was the first to ascend the steps, and advanced with becoming solemnity along the quay toward the shipping-office, where she shook hands with one or two of the brotherhood, the great majority of whom, it must be admitted, wore a sheepish air, as though the sanction which custom kindly extended to their present business were not quite sufficient to keep them in countenance. The young women, while endeavoring to appear unconcerned, shot many a curious glance at their future lords—in the mass, all chaotic and unclassified—and more than one, even in the brief space which preceded the ceremony of choosing, breathed a hope that the one really handsome man of the party might be inspired to choose her for his bride. But he was a proxy, and, sad to say, the proxies were a better-looking set than the missionaries. Let us hope that no embryo Lancelots lurked in their midst. With them, at any rate, we have nothing to do.

Drawn up in two long rows, with Mrs. Abbott and the shipping-agent between them, and with all the appearance of being arranged for some country dance or rustic game, the 34 contracting parties stood, and, at a word from Mrs. Abbott, the process of selection began. Five minutes were allowed to each gentleman in which to "suit himself," as the servants say. No. 1, rejecting, perhaps through bitter experience, the comelier of his vis-a-vis, announced, after only three minutes' deliberation, that his choice had fallen upon the third young lady from the top. They were accordingly presented to one another, and fell out to make acquaintance while the game proceeded as before. Sixteen selections had been made, and now there remained only the two who had no choice—Patience and the 17th missionary. We cannot here enter upon the discussion of a difficult and painful question, that of the suitability of certain persons to hold the office of spiritual pioneer to the heathen; but, if ever there was a bad specimen of a missionary, it was No. 17. That he was No. 17 was due to a partiality for cooling drinks at irregular intervals, and he had swallowed the last three on the way down to the shipping office, coming in hot, dusty and anathematical, five minutes later than No. 16.

"I say, Mrs. Abbott," he began in a loud, coarse voice. "I say, this isn't fair, you know. I'll complain to the authorities. It's a regular swindle. The girl's lame. I saw her limp coming up the steps. I won't have her at any price, not if I know it. You don't catch Adolphus Simkin making such a fool of himself. I have the honor to wish you a very good morning," and, taking off his hat with an ironical flourish (though he never lifted it to anyone in the way of politeness), he took his departure, blundering as he went over the miscellaneous litter of the quay.

Patience stood transfixed with shame and terror. She had just sense to see that anything would be better than life with such a brute; but where was she to go? what could she do? Her heart failed her, and but for the welcome support of Mrs. Abbott's friendly arm she would have fallen.

"Don't you mind, my child," the good woman whispered kindly; "it's the greatest piece of luck for me. For you'll come up to Pagiri with me, and help me about the house and the farm, for I'm not as young as I was, and it's more than I can manage singlehanded.

"Thank you," murmured poor Patience, "you're too kind; I'll only be a burden to you, but I don't know what else to do till I see my way."

II.

It was a 24 hours' journey by rail to Pagiri, at that time a terminus. But a new line was in progress connecting it with Pamba, the Capital of the district, and the little town was overflowing with coolies engaged upon the work, and its society augmented by the staff of Englishmen who directed their labors. The neighborhood had much deteriorated during the last six months. Crime and the death-rate had increased 50 per cent., owing to a very complete system of overcrowding, combined with a generous consumption of raw spirits. Cholera and smallpox were no longer mere visitors, but naturalized inhabitants, presented with the freedom of the city; and for one chicken that had formerly strayed from Mrs. Abbott's fowl-yard into the hut of a hungry coolie there were now seven, plainly showing that the more equal distribution of the good things of this world is the direct product of civilization. But for the prolongation of the line the simple natives of Pagiri would have been content with robbing Mrs. Abbott's henroost once a week. Now the minister and his wife revelled no more frequently in the consumption of fowls—roast, boiled, or curried—than the deserving natives who surrounded them. Another result, and one which struck the Abbotts as being more distinctly advantageous, was that their social circle had gained by the arrival of the English engineers. Not one of them was of the missionary's way of thinking on religious matters, but he was a tolerant man and permitted himself to enjoy a pleasant chat with a son of Belial now and then on topics purely worldly. Indeed, before long the the bungalow became a much-favored resort of several of the newcomers, with whom Mrs. Abbott was deservedly popular, and hardly an evening passed without one or more turning in at the gate for an hour's smoke in the veranda, and a bit of harmless gossip with the good man and his wife. Patience, who kept herself a good deal in the background on these occasion, was happier at Pagiri than she had ever been in her life. The soothing warmth of the atmosphere, both moral and climatic, had done wonderful things for her, and she began at length to look her age. At two years old she might have been 100; at 15, 35, and at 20, 50. Now she was 25, and looked it. The pained, drawn expression had left her face; her smooth skin had taken a faint tinge of pink; her white dress was made with less regard for economy than the gray linen, and she had developed a latent genius for housekeeping and a handy, helpful way which made her friends regard her as a valuable acquisition to their household, and congratulate themselves upon her rejection as a missionary's wife.

"She is reserved for some other fate, my dear," Mr. Abbott had said to his

wife with some solemnity as they sat together in the veranda one afternoon six months after Patience had become an inmate of the house. "Predestination is at the bottom of it, you may depend. Providence intervened on her behalf."

"It was time somebody did," answered his wife, rather irreverently. "Poor child, she has had a sad life, and I think she must have been half starved into the bargain, now that I see the difference being here has made in her. I shouldn't be surprised if she married and left us after all. She isn't so very lame, and she's a nice, sweet-tempered, handy little thing."

Patience, who was laying the dinner-table, unintentionally overheard these remarks, and blushed and trembled, startled by the joyous leap her heart gave, and half afraid to contemplate the wonderful vista of possibilities which Mrs. Abbott's words had opened out before her timid eyes; for she had lost her heart, and without the slightest encouragement. Among the engineers was one who had lived for some years in the district. He had lost his wife when his little boy was born, and the child was now four years old, strong and hearty for one reared in the East, but, to an eye accustomed to English babies, only a poor little scrap. John Graham was grave beyond his years (which were 35), but kindly and gentle with women and devoted to his little Jack. In his profession he was highly esteemed, and by all held to be an upright and honorable man, though more reserved than many of his associates quite understood or approved. His reserve had broken down before Mrs. Abbott's motherly concern for his child's welfare, and almost every evening, when the little fellow was in bed, he would come over from his unhomelike shanty and sit, smoking, for the most part in silence, in the missionary's veranda. He never omitted, however, to pay his respects to Mrs. Abbott and Patience, whom he treated with as much courtesy as if she were a queen, and often allowed himself to stay awhile when the others were gone, chatting on a variety of subjects with the two women—subjects on which with the world at large he kept his own counsel. It was a sort of worship which the girl gave to the tall, grave man. They were too wide apart for love—indeed, there was something almost ludicrous in the mere suggestion of such a thing, and Patience's cheeks burned when she thought of it, and she rated herself soundly for giving way, even for a moment, to the wild flight her imagination had taken when she heard herself pronounced not unmarriageable.

Mrs. Abbott had carefully kept the secret of Patience's rejections from the gossips of Pagiri, but she could not close the mouths of all those young women—eye-witnesses of the incident—who were now scattered broadcast through the district as missionaries' wives. Graham rarely left Pagiri, where he was in charge of the works; but others went further afield, and one evening young Jameson came back from Pamba with a wonderful tale to tell, and brought it straight to the Engineers' Office, where they had just knocked off work.

"You know that girl up at old Abbott's," he said to his chum, while Graham, unnoticed, was turning over some papers at his desk. "Well, would you believe it, she was so wild to get married that she left her good home in Wales and came out here six months ago with a lot of others, in spite of her people's wishes, to be married to one of the bachelor missionaries—and not one of them would have her! I suppose they had been warned of the flighty sort of young woman she was. So she was in a nice fix, and Mrs. Abbott had to ask her to come and stay with her till she could find something to do, for the Missionary Society refused to give the girl her passage-money back to England."

"Well, she's a deep one, then; she looks as if butter wouldn't melt in her mouth. Where did you hear the story?"

"Oh, a fellow who had been up at Katali told me. The missionary has the only bungalow in the place, so he was staying there, and Mrs. Missionary, who was one of the cargo herself, told him."

"Excellent authority, no doubt," interrupted Graham. "Perhaps you might hear something to the disadvantage of the lady at Katali if you asked Miss Owen. It would be a valuable addition to your collection of 'Queer Stories,' and make you a welcome guest at some houses where gossip is thoroughly appreciated." And Graham, who rarely spoke to his subordinates save on matters of business, gathered up his papers and left the two young men, uncertain whether to be more surprised or offended by his observations.

Graham himself was disgusted. He did not believe that what he had just heard was correct in all its details, but he feared that the main fact—that of Patience having come out to Shikarore to be married—was likely to be true. It was a shock to him to find that the demure little woman with the sweet voice and quiet ways, whom he had got to like almost insensibly, was, after all, nothing but a vulgar husband-hunter, and he was pained and irritated by the idea. His horror of gossip forbade his broaching the subject to Mrs. Abbott, so he put it away at the back of his mind, and, but for a slight shade of coldness in his manner to Patience, it produced no outward effect. But, keenly alive to all that concerned Graham's intercourse with herself, Patience immediately perceived the change, and, conscious of the weak place in her armor, concluded that the hated incident had been made known to him. Her face began once more to assume the careworn expression which her kind friends had believed banished forever, and she no longer sang as she went about her work. Graham came no less frequently to the house, and scarcely a day passed on which Patience did not see him. But this was now more a pain than a pleasure to her, and she was almost glad when he announced one evening that he had been summoned to attend a meeting of Directors at Pamba, and that this, along with some other work at a distance, would keep him away for about a fortnight. He asked Mrs. Abbott to look in on the little boy now and then to see that all was well, although he had the greatest confidence in the child's ayah; and Patience ventured to join with Mrs. Abbott in assuring him that they would look after little Jack during his father's absence. But Graham's formal words of thanks sent a chill to her heart, and she wished she had not spoken.

III.

Graham had been away for 10 days, and Patience had not passed one without making a pilgrimage to his house in the faithful fulfilment of her promise to look after his little lonely child. They had become fast friends, and Jack watched anxiously for "Pacie's" coming, skipping out on the veranda to meet her, and demanding the stories which he had discovered she was a very good hand at telling. But on the 11th day "Baba Sahib he being very sick" were the words with which the ayah greeted her, and her heart sank as she followed the woman into the nursery. Little Jack was in high fever, and Patience directed the ayah to go or send for the doctor without a moment's delay. Then she took off her hat and sat down beside the child's cot, soothing him with gentle words and touches, and singing in a hushed voice one or two of the old psalm tunes which were her only songs. At last the doctor came, pronounced that the child "looked uncommonly like smallpox," and asked Patience if she intended to stay, as the ayah already showed signs of losing her head.

"Of course I will stay," answered Patience (adding to herself, "Nothing is likely to happen to me just because I could so well be spared). I shall be glad if you will tell Mrs. Abbott what keeps me here, and she will send over somebody with what things I shall want." So the doctor gave his orders, and, being in a hurry, as he always was nowadays, took his leave, and Patience's watch began. About an hour later the medicines and a small trunk containing her clothes arrived, with a kindly message from Mrs. Abbott, and then the stillness of night closed round the bungalow, broken only by the sick child's impatient moaning and tossing, which Patience was now powerless to still. All night she watched, and all the next day she would not let her strained and weary eyes close for one moment lest she should fall asleep at her post. When the doctor came in for the third time on that day, he looked so grave that her fears were thoroughly aroused, and she could not have slept had she tried. Against such raging fever the child's strength could not hold out much longer, and when the doctor looked in at 5 o'clock on the second morning he was scarcely surprised to see the poor little man lying pale and exhausted in his cot, with nothing but his faint breathing to show he lived.

"I fear he cannot last through the day," said the young man, "even if he were to take all the nourishment I ordered for him. The fever has burnt the life out of him, poor little chap; and no one knows where his father is. None of my telegrams have been answered." And the doctor was off once more.

Patience's eyes filled with tears that would not be kept back when she thought of Graham's despair. "Oh, God," she murmured, "take me and let little Jack live. Take me and let me be at rest, for I have no place here, Oh Lord." Little Jack opened his eyes, and when she looked at him she knew her prayer was vain.

When the doctor had paid his evening visit and was on his way back to the town, he met Graham hurrying with a gray, set face toward his bungalow.

"Is he alive?" he asked hoarsely.

"My dear fellow, he is conscious," said the doctor, and sped on, knowing he could say no more.

Graham stopped on the threshold to take off his boots, and then softly entered the nursery. Patience was seated beside her charge, with a tiny hand clasped in one of hers, while with the other she screened her face from the child, lest he should see her tears. But he was lying quite still, with closed eyes, and it was only when Graham whispered, "Jack, my little man, Daddy is here," that he showed signs of consciousness. Then he tried to raise himself from his pillow, but fell back on his father's shoulder with a sigh and a piteous murmur of "Jack so tired, Daddy," that went through poor Graham's heart like a knife. He took the child into his arms and Patience, relinquishing the little hand, tried to steal away unobserved. But Jack's "Not go 'way, Pacie," brought her back to her post, and kept her there until the end came.

From time to time the child would swallow a few spoonfuls of food, uttering a few words of plaintive remonstrance—either "Jack so tired," or "Let Jack alone." Once he asked "Pacie" to sing "Fox," and steadying her voice with an effort, she gently crooned "When shepherds watched their flocks by night." He was too weak to say the customary "adenn" when she had finished, and lay quite motionless until just before his death. Then he looked up into his father's face and said, "Kiss Jack, Daddy; Jack goin' bye. Pacie, kiss Jack, too."

Five minutes later Patience knew that her vigil was at an end, and she crept noiselessly from the room.

IV.

Next day Patience had sickened with smallpox, and Mrs. Abbott hastily migrated to Graham's bungalow to nurse her. It was a sharp attack, but the little woman weathered it bravely, thanks to her naturally wiry constitution and her friend's careful nursing. When she was allowed to sit up in bed she asked for a looking-glass, trembling exceedingly lest one more trial might be in store for her in the disfigurement of her poor little face, at no time of more than passable comeliness. Was it wrong of her to thank God for having spared her this further affliction? It meant so much to one of her shrinking disposition, whose path through life would have become even harder had she believed herself to be a repulsive object as well as stupid, dull, awkward, and unwelcome. And she had dreaded—for was she not a woman?—the painful impression which her countenance, blurred and altered, would have produced upon her hero's mind, kindly as he would have striven to conceal the fact.

When she was considered out of quarantine Graham came to see her, and her shyness in receiving him was much tempered with gentle sympathy, for she had shared his sorrow with him, and no longer felt herself on a different platform. He did not allude to his loss, but kept the conversation on every-day subjects, never

permitting it to flag, and drawing out his companion's ideas with so much tact that she forgot to be nervous, and delighted him with her quaint sayings and simple unworldly wisdom. Now, Graham had just heard the true story of Patience Owen from Mrs. Abbott, and pitied her sincerely, though he could not rid his mind of the notion that a girl who allowed herself, without a word of protest, to be put in the undignified position of a candidate for marriage with a total stranger would hardly have the strength of character to steer a straight course through life—speaking the truth and shaming the devil—and so he proposed to himself to put her to the test, with the idea that if she came through it triumphantly he would consider the advisability of asking her to be his wife. Therefore, when at length a pause occurred in their conversation, Graham, instead of rising to go, suddenly resumed his serious manner, and remarked:

"We are friends, Miss Owen, are we not?"

"Yes," faltered Patience, all at once grown shy.

"And friends will not fall out for a trifle?"

"No, indeed," she answered. "I have so few that I could not afford that."

"Then will you tell me what brought you out to Pagiri?"

Poor Patience blushed painfully, twisted her fingers in her pocket-handkerchief, and showed every sign of distress. "I left home because they didn't want me," she said hurriedly and with downcast eyes, "and came out to marry one of the missionaries. No one would have me, so Mrs. Abbott took me to live with her."

What it cost her to make such a confession Graham dimly guessed. He hated himself for his cruelty, and a great wave of compassion for the poor forlorn girl swept through his heart—compassion mingled with admiration for her courage.

"Forgive me," he said. "Poor child, there is a great deal of happiness owing to you. Do you think I could make your life brighter? Patience, will you let me try?" But before she could answer him Mrs. Abbott had bustled into the room.

V.

The Directors at Pamba telegraphed for Graham once more on the day following his visit to Patience, and she made up her mind that on his return a week later he should not find her at Pagiri. "He shall not marry me out of pity," she said to herself. "He cannot possibly love me, and without his love I could not be his wife. It would break my heart." So with a good deal of difficulty she persuaded Mrs. Abbott that she had centered all her hopes on becoming a hospital nurse, begging her to use her influence with the matron of the great hospital at Khansal, so that she might be taken on at once as a probationer. The day before Graham returned to Pagiri Patience had left, and as she was being deposited 24 hours later with her modest luggage at the gates of the hospital, tired out and heartsick now that the excitement of her flight was past, Graham was crossing the bit of waste land which lay between his own bungalow and the Abbott's, turning over in his mind as he walked what he should say to Patience if only Mrs. Abbott would give him a chance of seeing her alone.

His surprise was great when he heard of her departure, and that night he smoked in stony silence—"for all the world like a deaf-mute," Mrs. Abbott complained when he had gone. Next day, after making arrangements so that his work should not suffer during his absence, he gave himself 48 hours' leave and took the train for Khansal.

Patience had been given a day's rest after her journey, but on the second day she had begun her training, and in the old gray linen gown, large white apron, and mob-cap she had been all day long receiving instruction in her future duties. The sights which she saw made her seriously doubt her suitability for the profession she had chosen, and from standing about for so many hours she was ready to faint with fatigue. She could not eat, and felt weary and lonely to the very last degree. At 7 o'clock she was free, and on her way to her own little cubicle, where she hoped to lie down for an hour before supper, she was stopped by a message from the Matron to the effect that there was a visitor for Miss Owen—not yet metamorphosed into Sister Patience—and would she "step down" into the dining-hall. Wonderingly she obeyed the summons, thinking as she went down the long flights of stairs how fatiguing it would be to "step up" again.

The long, cool dining-room was very dark, and she was not at first quite sure that it was John Graham who stood before her. But when he held out his hand, saying, "Patience, why did you run away from Pagiri when you knew I had something to say to you?" she felt all that his presence at Khansal meant. She tried to speak so as to answer his question, or at least to ask him how he did, but no words would come. And when he saw the tired, white face, and felt how her hand trembled, he did not press for a reply, but led her to a sofa and sat down beside her. "I have come to fetch you home, dear," he said. "You are not strong enough for the work here, and I want you very much."—*The Cornhill.*

Effects of Frost.

The effects of frost on the soil and vegetation are somewhat complicated, and they affect the crops variously. When the land is in the best condition the results of freezing are wholly beneficial. The surface is pulverized and loosened and made fine and mellow, so that the soil sifts in among the leaves of the grain and thus form a very useful covering for the roots. The frost is therefore a protection rather than an injury. Besides, the land is not heaved and thrown up by the freezing and subsequent thawing, as when it is packed and hard and solid. The roots are thus saved from the serious injury of being torn from the soil and broken, and the plants are not thrown out and destroyed. Thus this great bugbear of the careless farmer is a source of benefit to the more careful one.

The case is very different when the land has been badly tilled. Then the frost penetrates to a certain depth and lifts the ground as in a layer and parts it from the subsoil. The roots are then broken at the separated soil, and the whole surface is lifted up and the plants, of course, must perish. This is the reason why so much damage is done by the frost in badly-tilled land. The thin layer of pulverized soil lies upon the hard subsoil, which has been made compact by the pressure of the plow sole, and is almost impermeable to the water; thus the surface is saturated with water, which cannot escape and remains in the top la[illegible] This, on freezing, is lifted from the ground below and becomes a mass of soil and ice crystals, which expand and separate the particles of soil, thus tearing the roots apart. When the soil thaws, the whole mass then becomes loose, and the roots are left exposed on the top of the ground. This is the explanation of the process of "throwing out" the wheat, as it is called, and knowing the way in which it is done, will easily lead to such precautions as will prevent it.—*New York Times.*

RATTLESNAKE VENOM.

The Methods Employed to Make the Reptile Harmless.

The snake is seized a short distance behind the head by means of a staff having at its end a thong of leather passing over the end and through a staple, and this is tightened or loosened, as occasion may require, by means of a string extending up the handle. It has been found necessary not to confine the snake's head too tightly, as otherwise it cannot be induced to strike. The head being secured, a stick having its end covered with absorbent cotton is pressed against the snake's mouth, and it is teased until sufficiently irritated to strike its fangs into the cotton, which receives the venom and obviates any danger to the fangs, as it has been found in allowing snakes to strike against a saucer the fangs are frequently broken off. Generally a snake will strike three or four times very viciously and then relapse into sullen apathy. We have in vain endeavored to procure venom from our snakes by pressing over the poison glands, but this has been unsuccessful, except in one instance, unless the snake was chloroformed, and if this is done the reptile generally succumbs within a few days. This fact is mentioned as it has been learned through the public prints that some experimenters in a neighboring city had succeeded in squeezing out the venom while the snake was active.

The quantity of venom obtained from different individuals varies greatly. From a large rattler, weighing perhaps three or four pounds, our first attempt resulted in securing about fifteen drops of venom after the reptile had struck three times; but if the process is repeated every day or two but a very small quantity is obtained. The smaller snakes give a much smaller quantity. The cotton, after having received its charge of venom, was removed from the stick and washed out carefully in glycerine, and by measuring the quantity of this substance first and then after the venom has been added, we were able to tell accurately the strength of the solution, which consisted of eight drams of chemically pure glycerine and one dram of the venom. This is the preparation which was used in all the experiments, and is called glycerine-venom. One fact should be stated as bearing upon the popular belief that snakes, if kept from water, are not poisonous. It was found that by keeping the rattlers without water for a week or two the quantity of venom was materially smaller than when we allowed them free access to water, and that the color of the venom, which was yellowish-green when no fluid was supplied, became much lighter in color when they had freely drunken. We have never been able to induce our rattlesnakes to eat, although they have been tempted with a variety of food, but water they consume largely.

When the present supply of rattlers was first received, it was a very easy matter to grasp any one of them behind the neck with the snake staff; but experience has taught them that they must do something against their will, and now it is quite difficult to secure them, and even when secured it is difficult to make them strike; in fact, one specimen is now so tame that it may be handled with impunity, and it is the writer's belief that a rattler, if carefully and tenderly handled, will not bite the hand that grasps it. It is believed the Moqui Indians are aware of this, and it enables them to handle with impunity the venomous snakes used in their fearful dance, so well described by Capt. John G. Burke, United States Army. Many persons suppose that the fangs of a rattler once removed the reptile is harmless for all time, or that at least a year is required to replace the fangs. This is an error, for the writer has in his possession a rattler in which the fangs were twice replaced after an interval of three weeks only. As the rattler doubtless knows when the contents of the poison gland is exhausted, as is evidenced by his refusal to bite after two or three efforts, he probably also knows that it is useless to show fight when the fangs have been removed, and this has been practically tried on one of our snakes. She continued to coil and rattle, but no matter how much teased and irritated, makes no attempt to bite.

An interesting fact has been noticed during the experiments that may be important to record. It is that the rattler does not invariably use both fangs in striking, the muscular movement of either side of the jaw being quite independent of the other, and quite at the will of the reptile. The practical bearing of this point is that occasionally in snake bite but one puncture will be found, and some doubt might exist if this was really due to the serpent's fangs or not. Another point of interest lies in the fact that if only one fang is plunged into the tissues, the patient will not have received so large a dose of the venom as if both teeth had been used, and a more favorable prognosis can be made.—*Forest and Stream.*

THE writers against religion, whilst they oppose every system, are wisely careful never to set up any of their own.

When bad men combine, the good must associate; else they will fall, one by one, an unpitied sacrifice, in a contemptible struggle.—*Edmund Burke.*

SPECIAL NOTICE.

To the Wool-Growers of the United States.

There are many valuable periodical publications in different localities in the United States, but none at our National Capital devoted to the interests of farmers and wool-growers; especially to methods of farming, varieties of production, seeds, varieties of stock, stock-breeding, the care of stock, etc. There is imperative necessity for an ably-conducted journal at Washington, D. C., devoted specially to those interests of farmers and wool-growers growing out of legislation by Congress, the administration of laws by the Executive officers of the Government, the decisions of courts, etc.—a journal that will advocate boldly and fearless protective duties for every product of the farm as amply beneficial as those afforded to the most favored of our protected industries. Importers, wool manufacturers, etc., keep agents in Washington to look after legislation, to appear in the Departments to argue questions arising on the administration of laws; but farmers, including wool-growers have no agents there located, nor any newspaper there to advocate their interests or protect them. The result has been that adverse interests has always secured advantages over them. The rulings made after the wool tariff act of 1883 by customs officers, in some of the Departments, and even in courts ruinous to wool-growers, never could have been made if there had been an able journal at Washington always promptly advised of questions arising, requiring discussion and prompt notice to the farmers of the country. As early as 1887 a National Wool-Growers' Convention at St. Louis resolved in favor of establishment of such journal at Washington, and on Jan. 12, 1892, the Ohio Wool-Growers' Association renewed the recommendation.

THE AMERICAN FARMER, the oldest agricultural paper in the United States, has recently been purchased, and will soon, and hereafter, be published at Washington, under the editorial management of an able and vigorous writer, a fearless advocate of protective duties for farmers, and a gentleman who will be vigilant to look after legislation in Congress, and all that may be done in the Departments or elsewhere affecting them.

I especially urge upon farmers, including wool-growers, to patronize liberally the journal mentioned. The attempted frauds on the McKinley wool tariff law, the mistakes of customs officers against wool-growers, the personal arguments made by importers in the Treasury Department against them, all know the urgent necessity for a liberal support of this journal.

Respectfully,

WILLIAM LAWRENCE,
President Ohio Wool-Growers' Association.

SAMPLE COPIES.

Those who receive a copy of this paper are requested to give it a careful examination. The urgent need of a practical farmer's paper at the Capital of the Nation has long been felt. We propose to make of THE AMERICAN FARMER as good if not the best agricultural paper in the whole world. Neither money nor effort will be spared to get the best possible talent to contribute to it, and it will be kept far to the front in everything that relates to the best and highest interests of the farmers of the United States. It will be live, progressive and aggressive from the start, and aim to lead in everything that concerns the farmers in every section of the country.

THE AMERICAN FARMER is the oldest agricultural paper in the United States. For nearly three-quarters of a century it has enjoyed a most enviable reputation as a high-toned, reliable, progressive friend of the farmer. It shall be our aim to maintain this high reputation and increase it. Whatever long-trained skill in journalism, the leading talent in every branch of agriculture or abundant resources can do to make THE AMERICAN FARMER the foremost of agricultural papers shall be done.

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THE AMERICAN FARMER.

"O fortunatos nimium sua si bona norint agricolas."—VIRG.

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THE SPRINGER TARIFF BILL.

Mr. Springer has chosen the point of attack upon the McKinley tariff with deliberation and some caution. He regards wool and woolens "the weak point of the enemies lines." [See his article in *North American Review.*] If these can be successfully overcome the future campaigning may be easy and the results satisfactory. It is a questionable compliment he pays the wool-growers in selecting their industry as the point he thinks can be the more easily captured. He no doubt mistakes their innocence and modesty as evidences of indifference and weakness. If so, we think he will find out his mistake.

The wool-growers have their friends, and the singling out of wool and woolens, and his declarations of completing the environments of a tariff citade—if he may be successful in the first industry attacked—will cause a sympathy and cooperation that has not hitherto been felt for the safety of wool men.

Patrick Henry said: "He knew no way of judging the future than by the past." His words apply equally well to the perils and prosperity of the wool-growers of the United States. The experiences of the past outweigh the theories and sophistries of wilful politicians. The system of protection is recognized as a necessity. The protection of our American wool is no exception to this rule. The mother countries of the American colonies never encouraged woolen manufactures in their colonies, preferring to reserve the right of clothing their wards from their own mills. The English Government pursued this policy toward us. As the spirit of independence grew upon our people woolen manufactures and the fostering of flocks became a recognized necessity. The war of the Revolution found us not wholly dependent upon English mills. At the close of the war England proposed to do by treaties what she could not do by f r of arms. If she could break down clothing manufactures in this country she would be satisfied. The American clothing trade then, as now, was the finest in the world. It was worth the efforts of the wisest diplomats, and then, as now, no schemes relating to clothing goods were omitted. This was the final field of contest of the English Government to destroy our independence. The tariff was then, and has always been, our bulwark against the oppressions of the mother country. Prostrate our wool and woolen industries, and the independence of the United States would be a thing of the past.

The results of legislation on the tariff have caused the ups and downs in the sheep industry. It is not possible to regulate the prices of wool by tariff laws. No one thinks so. The laws of trade and commerce govern the markets of the world. But the American people who pay the expenses of the Government do insist that those who choose to use our markets shall help to support the Government. If it is a good thing they think this is reasonable and has a market value. The tariff is, as said, not to regulate prices of wool directly, but indirectly by keeping our markets from being the general dumping-ground of the foreign surplus. This is the duty of the National Government. This is all the people expect; but this is the wool-growers and woolen manufacturers demand.

It is claimed that the consumers pay this tariff. It is a trick, the falsehood of which foreign producers know full well, and of which they are now loudly complaining. This used to have weight in tariff reform speeches, but is now unimportant and rarely used save by ignorant speakers or to ignorant people. The American consumer knows that free trade could not reduce the cost of clothing "one half" as some tell us. Mr. Springer very modestly tells us it is impossible to estimate this additional cost to our people. We will only quote from the Treasury statistics on this one point: "The average value per capita of woolens imported between 1850 and 1860 was $1.09. In the following decade, which included the war period with its immense waste of clothing and high cost of goods, the average importation for each individual was reduced to 91 cents, and between 1870 and 1880 it fell to 86 cents. For 1891 it amounted to 64 cents." This is not the full cost to the American people of woolen protection, but it is a pointer that is worth remembering.

About imported woolen goods: More than three-fourths of the goods that are sold for *imported* are manufactured in this country. Why? For the foolish weakness of our own people in buying what is *called* imported.

The people only ask a fair trial of the present tariff law. It is evident they have confidence in it, since the flocks

have been largely increased within a year. We have 1,507,229 more sheep in 1892 than we had in 1891, with an increased value of $7,723,823. This is a good showing, while wool, for commercial reasons solely, is lower than it was in 1891. The wool-growers of Australia complain of the ruinously-low price of their wool product. They are more oppressed than we are. Shall pity for them be the least argument for pulling down our fences and giving them our markets?

Mr. Springer will soon discover that the wool men will not be the easy prey he imagines. They are waking to the dangers with which he menaces them, and are getting ready to protect themselves. They will watch carefully every move in the hostile camp. They will find out who are their friends, and who their enemies, and they will hold the latter to a strict account for every injurious act, speech or vote.

The time was when we feared the American people would have to take their dose of "free-trade medicine" before they knew what it was like. We do not now. They have been near enough to the danger-line to know what they want, and they mean to have it.

THE AMERICAN FARMER FOR 1891 AND 1892.

If the product of any individual farmer was below the average last year, let him not be discouraged, but quite the reverse, for 1891 was a very profitable year to the American farmer as a class, and as a natural result the new year has opened with very encouraging prospects. As a Nation we are far stronger commercially than a year ago. A season of light crops was behind us then. The reverse is the case now. There was little surplus for export then. Now, much. The world needs all our surplus breadstuffs. Our surpluses have not all been marketed yet. There is a large stock of wheat in farmers' hands that has not yet even been thrashed. The crop of corn is only just beginning to be moved.

There is a large debt due us by the outside world. Our merchandise balance for the last six months of 1891 netted $155,500,000. The general business of the country was satisfactory during the month of January, and, while we are unable to give exact figures, it is probable that at least $27,000,000 more is added to the large balance in our favor for that month. So far as we have been able to judge, the favorable conditions have continued through the month of February. *The American farmer should be the happiest man in the world to-day*, for he has not only produced an immense amount of real new wealth for himself and his country, but he is putting food into the mouths of, and must continue to feed through the year, the masses of famine-stricken Europe.

The capital invested in the railroads of America aggregates $12,000,000,000, or nearly twice the entire wealth of the Nation in 1850, and something less than the entire wealth of the country—including slaves—in 1860. Last year railroads were far from prosperous. This year they have not nearly enough cars to transport the produce seeking markets, and as a result of increased earnings are making long-needed purchases of rolling stock and material, and the car and locomotive shops and the manufactures of all kinds of railway supplies are receiving numerous orders. The mileage of new track actually laid last year was small, but the number of new roads under way or proposed is large, and if financial conditions continue as favorable as now, the disbursement for new construction during 1892 will be a very important element in the industries of the year. The railroads may be enabled to call in some of their outstanding bonded indebtedness, and thereby enhance the value of the preferred and common stock.

Manufacturers, merchants, contractors, and all who look for employment have great reason for hopefullness at the outlook for the year, but *the farmers are the great wealth-producers*, and when they prosper every other branch of business, arts, sciences, and literature, prospers. The farmer should do all in his power, without going in debt and thus mortgaging unproduced crops in advance, to improve his family, his library, his buildings, his live stock, his means of transportation, and his crops. It cannot be known when and where there is to be a scarcity and unusual demand, until they virtually exist, as this year, but the outlook indicates an active market another year for the products of the farm. Truly an independent farmer is the most independent of all men.

PRESIDENT LAWRENCE'S ADDRESS.

We give up much of our space in this issue to the publication in full of President Lawrence's address to the Ohio Wool-Growers' Association. No apology is needed for its length, however, for every line is meaty with interest to the farmer. It is very rare, indeed, that so much good common sense, and so much of solid fact, is packed into that much space. It tells, without any flourish of trumpets or rhetorical ornamentation, just what the farmers and sheep-growers ought to know and desire to know. We earnestly advise that every line of the address be carefully read and considered, and the number containing it be filed away for future reference.

The Orange Judd Farmer has sustained a severe loss in the death of Mr. George T. Judd, son of Mr. Orange Judd, and associate business manager of the paper. Mr. Judd was born July 6, 1861, graduated from college in 1883, entered a bank, and after a successful career there went West with his father and became one of the staff of *The Orange Judd Farmer*. He showed marked business ability, and was in the midst of a course of great usefulness, when he was carried off by typhoid fever.

TO THE FRIENDS OF THE AMERICAN FARMER.

Any misrepresentations of interested persons, or so-called agricultural papers, to the contrary notwithstanding, THE AMERICAN FARMER has not abandoned the field which it has so long occupied in the Central and Southern Atlantic States, nor the place of its original issue, its home for nearly three-quarters of a century.

Although (as announced elsewhere) the paper will be nationalized, its scope broadened, and its main office of publication located at the Nation's Capital, yet its long-time and trustful friends and supporters will still find it wide awake and active as to their requirements, opportunities, and hopes.

A separate edition will be published for Maryland and the South, an office maintained in Baltimore, and the farmers and planters of the Central States will realize that in their aspirations and efforts for improvement in every direction, financially and politically, socially and intellectually, they will have the heartiest support and most energetic help of the OLD FARMER, fully alive, as always in the past, to its great mission to aid, encourage, and advance agriculture, and as fully determined and even better equipt for usefulness and effective service than during any previous era in its useful and honorable career.

OUR FOREIGN TRADE.

During the month of January last the money value of American breadstuffs, provisions, cotton, and petroleum exported abroad was $77,145,772, as against $61,549,583 in January, 1891, and $56,375,724 in January, 1890. Of these amounts the value of wheat and flour, corn and meal, rye, oats, and meal, and barley, was in January, 1892, $30,147,281 as against $9,718,586 in 1891, and $11,557,620 in 1890.

The wheat and flour movement not only continues very heavy, but the corn exports are reaching almost equally large proportions. The value of the exports of corn and meal for January, 1892, is $7,699,914 against $860,755 last year, showing that of the increase of $20,500,000 in the breadstuffs shipments nearly $7,000,000 was from corn. In January, 1892, 825,190 bushels of rye, valued at $856,883, was exported, while for the corresponding month last year not a single bushel was exported. Of oats we exported nearly 2,000,000 bushels against 52,891 bushels last year. There was a healthy gain in provisions, also, although much smaller in breadstuffs. In cotton there was a falling off of about $6,333,000 for January, 1892, due to a decline in price and smaller shipments.

Notwithstanding the difficulties of exchange as regards American cotton, Lancashire records a great decline in her exports to Brazil of gray or unbleached piece goods. Whereas the value of these was for 10 months of 1890 $746,326, for the corresponding 10 months of 1891 it had fallen to $388,738. Now, without saying one word *pro* or *con* of reciprocity, let it be recorded, and let every farmer and political economist thoroughly digest the fact, that the value of the United States exports to Brazil increased during the year ending June 30, 1891, from $59,320,000 to $83,230,000, and the total exports of cotton manufactures increased from $9,999,000 in 18[illegible]13,604,000 in 1891.

For the same period the British cotton manufactures exported fell from £51,671,000 to £50,359,900. Exports of British machinery and mill work to Brazil have increased from £182,611 in 1890 to £327,035 in 1891, and miscellaneous machines from £329,532 to £600,676, but United States exports in this class have increased at even greater ratios. American exports of steam engines and machinery to Brazil during the first five months of the reciprocity treaty, from April 1 to Sept. 1, 1891, amounted to $1,299,000, as compared with exports of only $233,376 during the corresponding period of 1890, being an increase of nearly $1,000,000 for the five months.

The increase in favor of America, however, undoubtedly is and will be far greater, as the reciprocity agreement allows American machinery to enter Brazil free of duty, while British machinery of many kinds pay duties of 15 to 40 per cent., although certain varieties are free.

So it seems that while a good home market is a good thing, good foreign markets are excellent places in which to land our surpluses.

GOOD COUNTRY ROADS.

There is nothing outside of his own farm which lies so near the farmers' interest as good roads. Good roads mean more than mere comfort and speed in traveling. They mean better horses and a longer life of usefulness to valuable animals. They mean a vast saving in wagons and carriages, and greater profits on the farm from cheapening of the transportation to markets.

Good roads should be above all politics. They should be a non-partizan issue in every election, until laws are passed and selected to administer them, which and who will insure for every Township in the United States the best highways that skill and labor can make. Nothing will do more to improve the country and better the condition of every farmer.

WHILE there is much in the farmer's life that he can justly complain of, yet if he will compare his condition with that of his father and grandfather he will find much to rejoice over. The farmer gets a large share of the benefits of advancing civilization.

AUSTRALIAN FARMING.

Strange Types of the Human Race Developed in the Island Continent.

The "Cockatoo Farmer"—Sheep-Shearers' Lingo—"Sundowners"—The Strange Australian Forests—Men Crazed by Becoming Lost.

IN THE "bush" is the characteristic life of Australia only to be seen. In this indefinite locality, whose name suggests to the uninitiated an expanse of dense and tangled forest, the native Australian recognizes practically everything that lies outside the cities. The "cockatoo" farmer, who has cleared a modest plantation in the midst of the woods of eucalyptus and wattle and surrounded his demesne with a "cockatoo" fence of logs (I have sought in vain to discover the pertinence of the name that is attached both to the man and his work); the woodman, who hews the iron-like wood of the blue gum into timber for house frames, harbor piles, and railway ties; the gold miner, who rocks his cradle in the hollows of sun-smitten creeks; the squatter, who grazes sheep, like the sands of the seashore for multitude, over vast plains where for miles not a tree is to be seen—all these are brought together in the broad classification of dwellers in the "bush."

Old residents rarely speak of the country, but nearly always of the "bush"; to the districts more remote from the cities the term "back blocks" is applied, the word "blocks" referring to the holdings which have been purchased from the Government, and are generally laid out in rectangular form. Australians have a strange nomenclature of their own which much confuses the "new chum" (synonymous with the "tenderfoot" of the American Northwest). In certain districts the jargon of shepherds, woodmen, and shearers is as incomprehensible to those unlearned in strange tongues as Choctaw. What, for example, would the gentle reader make of this sentence, reported by a friend of mine as overheard by him in the converse of one sheep shearer with another? Said the speaker: "I waltzed up to the shed, took down the tongs, pulled out a blooming papillon, and was going down the whipping side with both blades heavily loaded, when the boss came up and shot me dead. I went back to the hut with a hop, skip, and a jump, threw the hide on the old crocodile, went down the river like a frog, and had clipped my 240 by 4 o'clock the next afternoon."

Being interpreted, this indicates that the man went to the shearing shed, took down his shears, pulled a sheep out of the pen (the word "papillon," in French "butterfly," evidently coming from some obscure connection between the insect and woolly cocoon from which it emerges, and being derived, no doubt, from some Gallic shearer aforetime), and was engaged in clipping the left side of the animal with all the rapidity possible, when the Superintendent of the shed came up and peremptorily discharged him. He immediately returned to the shearers' sleeping quarters, saddled his horse, rode at full speed down river to another station, and the next afternoon had a record of 240 shorn sheep—a number showing at once a most competent workman.

The shearers represent one of the most characteristic communities to be found in the bush. As I have already said, they are a nomadic race, following the course of the seasons as unerringly as the birds. Beginning their operations in the North, where the Spring comes on earliest, they follow the sun southward from station to station, until the closing season finds them completing work in the stations nearest the sea. Work for three months is brisk, and thousands of men find ready and lucrative employment. Some stations carry over 300,000 sheep, and employ hundreds of men, who, in the brief period of their engagement, acquire money enough to carry them through the rest of the year in a condition of elegant leisure. Comparatively few of the shearers, however, make a frugal or commendable use of their money. After the arduous labor of the shearing sheds, the mind of man naturally turns to means of recreation. In the bush these means are practically restricted to the "pubs," as the hotels or public houses are invariably called in Australia. These institutions usually consist of a bar exclusively, it evidently being considered that the wants of the traveling public are sufficiently met by plentiful supplies of whisky and gin. The regular course of procedure with old and seasoned shearers is to resort to the nearest of these establishments, hand over their checks—often amounting to more than £100—and take up their quarters until the money is exhausted. This, with the landlords to fix the prices of lodging and spirituous refreshment, is soon accomplished, and the muddled victim of "shepherd's delight" is turned adrift to shift as best he may until the next shearing season begins.

Throughout the year these dissolute characters may be seen wandering about the country, rough of clothing and manner, uncouth of speech, shambling along with hat slouched over their eyes and short black pipe in mouth, their "swag," composed of a blanket rolled up with such scraps of food as they may possess, tied over their back with a string, and the inevitable "billy," or tin pail in which to make tea, carried in their hand. Occasionally one comes across a couple or trio of them squatting about a fire, over which mutton is roasting and tea boiling, while the "damper" of flour mixed with water lies baking upon the coals. They are civil enough, though rough in manner, and for the stranger whom they accost to refuse to alight from his horse and take a pannikin of tea with them is a breach of good breeding which is likely to be commented upon by the gang in language which includes his eyes, liver, and other useful organs in general and eternal condemnation. To stop and join these gentry in a hobnob of scalding tea, which is innocent of milk or sugar, will often introduce one to as genial a set of vagabonds as ever graced a highway. Not a few of them are men who have enjoyed a good education and early social privileges in the "old country," and who, having been disappointed in obtaining in this new and practical land the positions for which they were fitted, have gradually passed slowly down the scale of employment and found bottom at last in the great army of shearer-tramps, "rouseabouts," and "sundowners."

The names above furnish us with some additional gems from the inexhaustible mine of the Australian bush vernacular. "Rouseabouts" are those who collect, dip, and wash the sheep at shearing time, and generally carry on the miscellaneous work of the station at this important juncture. "Sundowner" is but another name for tramp, and is applied to the wandering shearer out of work from the cleverness with which he times his movements so as to arrive at a station at or about sunset. Thus arriving, he claims hospitality and receives it ungrudgingly in the shape of supper and breakfast and a bunk in the station outhouse overnight, the owners well knowing that refusal would probably be followed by the firing of their barns or the slaughter of the fattest sheep in some distant "paddock," this word being applied in Australia to any field, whatever its dimensions, instead of signifying a restricted inclosure, as in England.

Refreshed by sleep and bountiful "tucker," the "sundowner" shoulders his "swag" again in the morning, and takes his desirable guestship to the next station. If, as often happens, the stations are too far apart to allow him to pass from one to the other in a single day, the shearer-tramp is in no whit dismayed. He turns aside to some hollow or thicket which offers shelter, sets up a "break-wind" of wattle boughs to protect him from the chill night breezes, and lying down in his blanket before a blazing fire of odor-distilling gum branches slumbers the sleep of the just. There is no more careless, irresponsible, jovial chap than your shearer in Australia, and through his system of modest blackmail upon sheep-owners manages, in spite of chronic impecuniosity, to pass a comfortable time between seasons, and to come up fat and smiling for employment the moment the sheds are opened for work. He forms something of a burden upon station-owners, however, one of whom has informed me that he has to entertain some 600 of his kind annually.

In striking contrast with the life of the free and independent vagabond shearer is that of the small bush farmer. Few states of existence could be harder or less desirable—what with struggle to subdue the iron-like forests; to erect buildings with unassisted hands from materials which he himself may have hewed out of stubborn logs or dragged with slow teams from a railroad a hundred miles away; to gather his crops with the costly and unsatisfactory labor which is afforded by wandering "swagsmen," a class of tramps who are to the shearers what *canaille* are to aristocracy, and who are fully impressed with the principle which seems to animate all classes of laboring men in the Colonies, viz., to make a bargain, and then, when the work is half done and likely to be ruined if neglected, to raise their price and quit work unless their demands are acceded to. The life of our Western pioneers is idyllic when compared with that of the Australian bush farmers; happy are they who, having followed the injunction to increase and multiply (and to do them justice Australians are to be distinguished for their observance of this command), have a large family of stout boys and girls to assist them in their struggles. Those who are thus independent of irresponsible tramp-labor usually make success out of their unfavorable surroundings, while others lead a precarious existence, or fail altogether.

When to these anxieties and struggles are added the elements of isolated existence, of monotonous seasons, dull and colorless surroundings in landscape and scenery, is it to be wondered at that many of these bush farmers end their lives in raving or melancholy madness? The hospitals of Australia are full of these unfortunates, demented by failures of crops through drouths that afflicted them year after year, by descents of the native "blackfellows" upon their flocks and stores in the more remote districts, by the awful loneliness and monotony of the limitless forests and plains that surrounded them. Life in the outermost "back blocks" is like that of men on a raft in midocean, and quite as isolated from companionship during the long, blazing Summers and the Winters dark with clouds and streaming with rain. In the country itself one often comes upon cases of mild mania, which are quite harmless, and are shown only under peculiar conditions and in such ways as a morbid collecting of old tin cans, strange exercises in physical activity, and rambling and incoherent conversation.

Many of these unfortunates owe their condition to losing themselves in the bush at some former time—an experience which is enough to drive the strongest mind into dementia. At first sight it would seem impossible for one to lose himself in these sparse, open woods, wherein long avenues open and through whose feathery gum trees the sky can always be seen. I can vouch by personal experience, however, that nothing is more deceptive than the apparent security of the Australian bush. All the trees are alike and afford no landmarks; the monotonous gray color of the trees and leaves is without accent or change for miles and miles, and the hazy atmosphere that fills the place from decaying vegetation and the sweating balsam of the eucalyptus add to the unsubstantial effect of one's surroundings. Straying a little out of the beaten track through a very open stretch of woods, in chase of a flock of cockatoos, I once became, in five minutes, so bewildered and turned about as to plunge every moment into deeper labyrinths, while confident that I was returning to the road.

It was a cloudy day and night was coming on as I wandered for half an hour amid new perplexities and in an awful silence. What might have been the result I do not know had I not heard in the distance the ring of ax-blows, and seen the spectral blue smoke curling up, which shows the work of the squatter in cutting a clearing for his future home. I soon came upon three stalwart young men who were hewing at a giant log; two horses were hobbled in a grassy plot near by, and

before a canvas-covered wagon a woman was cooking the evening meal over a brush fire. Apprised of my predicament, one of the men left his work to set me right, turned in the direction which I thought the less likely to be the right one, and in five minutes put me in the road to the station from which I had set out. My experience had been a mild one and with a fortunate issue, but it gave me an insight into the causes of some of the mental wrecks which the traveler through colonial wilds so often encounters.

In other places one comes across another characteristic class in the shape of old miners who hant the deserted diggings, or the banks of gravelly-bottomed streams which hold some traces of the shining treasure in their beds—relics of the old days of the mining craze, ancient hulks stranded where the reflux of the great wave of excitement and speculation has left them. One comes across their huts now and then in the thick scrub along the water course, and finds in each a bronzed and bearded hermit who greets the visitor with a quiet "Good-day, friend," as he looks at him with lusterless eyes. The old fire of expectation and hope has gone out of these orbs; they show nothing but the settled and patient acceptance of disappointed hopes, which in the case of many weaker men has caused madness or self-destruction.

The history of many of these recluses would furnish material for absorbing romances; of wild, ungovernable youth when home and friends were left on the other side of the world in the eager onset upon fortune in the Australian gold diggings; of manhood spent in dark shafts or under the blazing sun in rocky gullies amid the hopes and disappointments of an army of men who thirsted and gambled for gold; of an old age which had nothing but memories to live upon, when life was supported by the few grains of gold which daily labor could still extract from the banks of the improvised stream. The men who have experienced these vicissitudes are not, as a rule, drawn into companionship thereby; they prefer to live alone, nor from week's end to week's end do they see or desire the presence of any other human being. Lost in the remote wilds of the bush, they have acquired something of the shyness and love of solitude which characterize the furred and feathered creatures about them—as silent as the songless birds, living lives as destitute of fragrance as the scentless flowers. Such are some of the types of life peculiar to the Australian wilds, and of which the ordinary visitor to the Colonies is as ignorant as of the inhabitants of Thibet.—*New York Times.*

EARLY POTATOES.

Some Practical Hints on Raising Them.

EDITOR AMERICAN FARMER: As Spring is rapidly approaching a few words concerning the growing of potatoes may be of interest to some of the readers of THE AMERICAN FARMER. The first work is that of plowing the ground, which I would prefer to have done in the Fall, though Spring plowing may do very well on some soils. The ground should be plowed to a good depth, say eight or nine inches, being careful to avoid making skips. After the plowing is finished the next work is that of harrowing the ground, which should be done thoroughly—no danger of harrowing too much—and don't attempt to plant until the ground is well pulverized as deep as plowed, always bearing in mind that a loose and thoroughly worked soil is of the utmost importance in the growing of all root crops.

The next step is that of laying off the ground, which can be done with an ordinary single shovel-plow, going thrice in each row, so that each furrow may be well cleared of all obstructions. The furrows should be two and one-half feet apart. The droppers of the seed should follow as closely after the plow as possible, dropping the pieces 10 or 12 inches apart.

For planting I prefer medium-sized tubers cut to one or two eyes, while the seed end of the potato is generally discarded. Planting in this way will require 12 or 14 bushels per acre. The potatoes should be covered as soon as dropped. I think an inch of ground is about the right depth.

Where earliness of production is a consideration select a piece of upland with southern exposure, planting the potatoes as early in the Spring as the ground can be made in proper condition.

As to varieties, Early Rose has long been the standard early variety, and while the quality is good it certainly falls short in quantity. A great many new varieties have been introduced in the last few years, each claimed by the originators to be the best in quality, and also as to earliness and productiveness. Of the newer sorts I think Early Ohio, Lee's Favorite, Polaris, Burpee's Extra Early, and Early Sunrise among the best.

As soon as the potatoes are fairly up give the ground a good harrowing. There is not much danger of killing the plants; probably not more than one plant in 50 will be injured if a common spike harrow is used. This is done to kill the grass that has begun to grow in the rows with the potatoes, and generally avoids the work of hand-hoeing. After this they are to be cultivated between the rows as often as seems necessary, hilling them slightly at the last plowing. If at any time the Colorado bug appears to be troublesome give him, upon his first appearance, an application of Paris green or London purple, and generally two applications, if given at the proper time, are sufficient. As soon as the tops appear to be dead the crop should be harvested, but the manner of harvesting and marketing will be spoken of at some future time.—TYRO.

Medicinal.

Patient—Shall I take this medicine before or after eating?

Doctor—That depends on what you eat. If you think your food is unhealthy you might take it afterward.—*New York Herald.*

The Plow for the Garden.

I would as soon put a horse in my parlor as in my garden. It would do more harm than good. For many years I have used the small hand plow, with which as much ground may be covered in a day as with a horse plow, and the work is better done. In soil that has been made mellow by thorough plowing at the first, when the horse may be employed, and when well decayed manure is used, this little implement may be made to go five inches deep, which is enough. Thorough cultivation on the surface will sufficiently mellow the subsoil as far as will be needed at any time. It will open furrows for sowing seeds, and will cover them; it will ridge up the peas, and other crops; and will earth up celery as far as may be needed in its early growth. By substituting the cultivator teeth for the plow, it will clean the rows, and it is so light and easily worked that a boy will find pleasure in handling it. The garden then may be laid off into strips of 20 or 30 feet wide and the rows made across these, and these short rows may be made as straight as a line without the use of a marker. This is better than having the long rows that are needed when a horse is used to do the work. By the use of this cheap little implement one may go over a quarter of an acre of closely-planted garden in a short day, and not feel so tired as if worrying with a horse. —*Orchard and Garden.*

Home Made Yeast.

EDITOR AMERICAN FARMER HOUSEHOLD: To save work, I have bought lately what yeast cakes I have used. Fresh ones are all right, but every once in awhile one gets a package that is not fresh, and that has been my luck several times, till I have come to the conclusion that it is more bother to have bread setting around all day waiting it to raise, and then half the time not fit to eat after it is baked, than to make my own yeast. My recipe is not new; I have used it many years. It is the best I have ever tried, and may be new to some of the young housekeepers.

Put a handful of hops in a thin muslin bag, pour over it a quart of boiling water; let it simmer a few minutes to get out the strength. If it stands too long the tea will get dark. Wash and pare six good-sized potatoes, grate them; add to the grated potato one heaping tablespoonful of flour and a smaller one each of salt and sugar. Take out the bag of hops, pour in the other ingredients, stir and let boil for two or three minutes. It will be thick and clear looking, something like starch. When cool add a yeast cake dissolved in a little water, set in a warm place to raise, afterward keep in a cool place in a fruit jar or jug, so that it can be covered tight. Half a cup is enough for a baking. It will keep good three weeks or over.—L. F.

Free Bulletins.

Representative Tucker, of Virginia, wants to extend the franking privilege to the State agricultural colleges. In a bill just introduced he proposes that the bulletins and reports of all State agricultural colleges and State boards of agriculture shall be transmitted in the mails free of charge under such regulations as the Postmaster-General shall prescribe.

Patrons of Husbandry.

At its recent meeting in Oswego, the New York State Grange elected the following officers: Master, W. C. Gifford, Jamestown; Overseer, George P. Cushman, Plymouth; Lecturer, Daniel Cronkwright; Steward, John Moses; Assistant Steward, E. P. Cole; Chaplain, Andrew Childs; Treasurer, Lewis Fulton; Secretary, H. H. Goff; Gate-keeper, George Webster; Pomona, Alice Newsted; Flora, Mrs. N. F. Westerland.

Cider in Plenty.

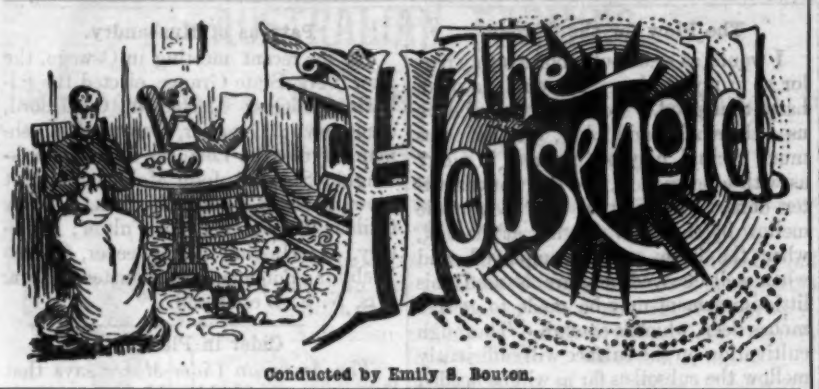
The *American Cider-Maker* says that the most remarkable cider season ever known in Connecticut lately came to a close. Day and night for four months the 600 makers have been busy, and some mills would still be grinding if there were any place to store the juice. It is estimated that enough cider has been made to supply the United States. Cider brandy has also been made in large quantities, and old disused distilleries were put in operation. The largest cider-maker, F. T. Palmer, of Mianus, pressed 160,000 bushels of apples, and said he made a "millpondful" of cider. The quantity of cider made is greater than the total for any previous three seasons.

Grass Seeding.

Complaints are frequent of the failure of grass seeding. This is most often attributed to the want of fertility in the soil, but the reason may be more frequently the want of the proper covering of the seed. The time has passed by when the soil can be "tickled with a hoe and laugh with a harvest." This was when the land still possessed its original fertility and its looseness of texture, by which a seed falling on the surface sank into the soft earth and germinated forthwith. Now, after many years of cultivation, the soil has not only become hard, but practically sterile. The seed falls upon the hard ground where it cannot sink into the soil and take root safely, and it becomes necessary that a sufficient seed bed, soft and fertile, must be prepared for it.

Neglect of this need endangers the success of the seeding, and the result is so often that the seed fails to the disappointment of the sower. The old idea must be got rid of and the old practice abandoned for a better way. The seed must be put in and not on the ground, and a sufficient covering be given to it. The young grass plant is a weakling that requires the very best protection, and cannot be left to itself to resist all the risks to which it is subject. The soil now deprived of its former abundance of vegetable matter which held moisture in ample supply sufficient for all the needs of the plants, and thus secured their growth in spite of dry weather, now dries quickly and the tender young grass perishes for want of a sufficient depth of root. This is the prevailing cause of the common failure of grass seeding. The remedy is obvious. A sufficient covering of soil must be given by means of a light harrowing as soon as the seed is sown. And this should not be neglected, for the result of neglect is too costly to be risked. —*New York Times.*

Sheep should not be allowed to run with cows. They dirty the ground so that the cattle will not eat the grass.



Conducted by Emily S. Bouton.

For the Home Table.

WINE JELLY.

One box of Coxes's gelatine; one pint of sour wine; juice of two lemons; one pint of cold water; one quart of boiling water; two pounds of sugar. Soak the gelatine in the cold water until it is soft. Then add the boiling water, stirring so as to thoroughly dissolve the gelatine. Add sugar, lemons and wine. Strain and set away in molds to cool. A good pinch of cinnamon is sometimes added.

EASTER DESSERT.

One quart of jelly made from the above recipe; three cupfuls of white blancmange; nine empty egg shells; the fresh rinds of two oranges; half cupful of sugar. Cut the orange rinds in long, narrow strips and stew gently in enough water to cover them, until they are tender. Add the half cupful of sugar and stew 15 minutes longer. Lay them on a dish to cool, being careful not to break them. The blancmange should be made the day before and the egg shells filled. The white and yolk of each should be poured out through a hole in the small end not larger than a half dime, and then the shell washed. Then fill with blancmange and set in a pan of flour or sugar, the open end up so as not to be overturned. The next morning fill a glass dish two-thirds full of the jelly, reserving a large cupful. Break the shells from the blancmange and lay these artificial eggs on the jelly as soon as it is hard enough to bear them. Pile them in the middle, laying the orange peel over and around them. Keep the cup of jelly warm so it will flow readily, but do not have it hot. Pour over the eggs and stew (orange peel) and set away in a cold place to form. When firm turn out in a platter. This is not so much trouble as it seems, and is very pretty and nice.

TO FRY CHICKEN.

Cut the chicken in pieces convenient for serving; salt them and roll them in flour. Drop them into boiling lard; fry quickly until thoroughly done. Pour out the surplus lard, leaving a small half cupful in the frying-pan. Into this stir rapidly a heaping tablespoonful of flour, then a pint of cream or fresh milk, salt and pepper to taste.

FRICASSEED CHICKEN.

Cut the chicken in pieces as for frying and roll in flour. Slice salt pork and lay in the frying-pan; on this lay the chicken and fry a light yellow. Put pork and chicken in a pot and pour water in the frying-pan to get all drippings from them. Pour this in the pot with chicken with enough more hot water to cover it. Cook slowly until tender. Toast bread and lay it on a meat platter. Put chicken on this with a part of the gravy. Put the rest in the gravy boat. To make the gravy, stir a tablespoonful of flour in a cupful of cream or new milk, then add to the gravy in the pot, stirring until it thickens.

CREAM SALAD.

One pint of sour cream; half cupful of vinegar; half cupful of sugar; one teaspoonful of flour; a piece of butter the size of an egg; two eggs; one head of cabbage. Put vinegar, sugar, and butter on the stove and let boil. Stir eggs, cream, and flour together, put into the vinegar and let boil, stirring all of the time. Cut the cabbage fine and sprinkle with salt and pepper. Pour dressing over cabbage after it has cooled.

FIG PUDDING.

This recipe is given by Mrs. Harrison, wife of the President, in "Statesman's Dishes and How to Cook Them:" One cupful of black molasses; one cupful of chopped suet; one cupful of milk; three and one-quarter cupfuls of flour; two eggs; one teaspoonful of soda; one of cinnamon; half teaspoonful of nutmeg; one pint of figs. Mix together the molasses, suet, spice, and the figs cut fine; dissolve the soda in a tablespoonful of hot water and mix with the milk. Add to the other ingredients; beat the eggs light and stir into the mixture. Add the flour and beat thoroughly. Butter a large mold or pan; turn in the mixture and steam five hours. Serve with cream sauce.

PUFF PUDDING.

One pint of flour; two teaspoonfuls of baking powder; a pinch of salt; some milk. Sift the baking powder into the flour, then stir in milk until the thickness of white cake. Grease cups and put in each a tablespoonful of the mixture, then one of fruit. Cover with another spoonful of the batter. Steam for 20 minutes. Sauce: Two eggs; half cupful of butter; one cupful of sugar; one cupful of milk, and one of the fruit used in the pudding—berries are the best. Beat sugar and butter to a cream, then add the well-beaten eggs. Beat together thoroughly, then add milk and berries.

BUSINESS LETTERS.

Every Girl Should Be Trained to Write Them.

Anyone who has had anything to do with the business letters of women cannot but be struck with the lack of precision in their methods of writing. It is entirely due to a want of training in this direction, of course, but in these days when there are few who are not required to do something in this way, it becomes very important that they should understand and feel the necessity of being clear and explicit, as well as brief, in communicating in any way upon business matters. I have had occasion to read many hundreds of such letters. In some cases a whole page of note paper, or even of letter paper, would be taken to communicate what ought to have been put into a half dozen lines. Sometimes the address would be left off entirely, and that, when its lack might be a money loss to the sender, and would most certainly cause delay and disappointment. What an absurdity, for instance, to say: "Please send me your book immediately," and then omitting to add to the name the place of residence, or to leave off the State.

I remember once when this was done, and there was nothing left but to await inquiry from the sender as to the reason she did not receive what she had sent for, seeing her letter full of the most violent accusations of an intention to cheat, by retaining money without furnishing an equivalent—the money being less than a dollar. Think of anyone of good sense, to say nothing of honesty, risking a good name for such a trifling sum.

Another failing in writing a business letter, and this is often the case with women of education, is a lack of accuracy. The letter may be concise and yet not contain the most important points for the information of the receiver. One thing that should always be done is to write the full address at the commencement of the epistle, and this should be repeated, no matter how many letters are exchanged. In this way, even were the address upon the outside defaced, it would still eventually reach the person for whom it was designed by being returned from the dead letter office.

Besides the inconvenience which lack of care and accuracy brings upon the senders of such letters, there is another thing to be taken into consideration. No one has a right to make other people unnecessary trouble, but that is what is done when there is such carelessness as I have been speaking of. Business firms must pay their employes for their time, and it is little short of robbery to occupy uselessly more than letters are entitled to. It is a curious thing that the most trifling affairs sometimes take the most effort to give satisfaction; that is, the people who are giving an order by mail which involves but a small amount will be the most exacting, even though what they complain of is often the result of their own lack of method.

A part of the training of every girl, no matter whether she is to be self-dependent or not, should be to write business letters in a business way.

ARTISTIC DRESSMAKING.

It Ought to be Considered a Fine Art.

Almost every woman is interested in having her dresses made artistically; that is with the utmost taste in the prevailing fashion. This is not an ignoble ambition, providing it is not considered the emphasis of one's life. When every hour of the day is given to dress, it is just as much a sin as intemperance in eating or drinking, for it is, after all, a species of intemperance. It is every woman's duty to look as well as possible; that is to make the best of every good point with which she has been endowed by nature. There is no question but that becoming dress, carefully chosen as to color, material, and a style of making considered with reference to hight, complexion and figure has a great deal to do with the matter. When attention to these things, however, occupies the whole thought, it is simply ministering to a vanity that shuts out the better things of life. I have seen women, however, who were so careless in attire as to be actually an eyesore to their friends. Both extremes are to be avoided. There is always a happy mean in all things, if we only take the trouble to find it out.

Considered in this light, dressmaking really reigns among the fine arts, and yet it is far from being so considered. There is not, however, anything like the carelessness in this respect that obtained a few years ago. Women think more of the style and fashion of their garments and exact more skill from those to whom they commit their making. The tailor-made garments have caused a revolution in this direction. Years ago it seemed strange to learn that men had undertaken to fashion women's dresses; now in the large cities it is a common thing, and everybody is familiar with the name of Worth, the dressmaker, whose word is law as to style. This man, who is described as a genial, pleasant-looking gentleman with very quiet manners, and now just past middle age, has a world-wide reputation. He has made dresses for many ladies of the royal houses of Europe, and for all of the principal society leaders on both sides of the ocean. It is said that the Empress of Russia and Queen Marguerite, of Italy, are both his constant customers. The Empress Eugenie was one of those whose beauty of wardrobe was largely owing to his exquisite taste.

In a sketch of him written by Lucy H. Hooper in *Harper' Basar*, the statement is made that at his pretty home near Paris he has a small theater "with a tiny stage, and there Mesdames Flavart and Croizette and others of the great actresses of France have come to go through before him the new roles that they were about to create, so that he might design for them dresses suited to the attitudes and the gestures required by the characters they were to impersonate. The first to consult him in this way was the great Rachel when she was preparing to appear in the only modern society play in which she ever acted, namely, "Lady Tartuffe." The

establishment of the Republic in France has wrought no change in the prosperity of his house. There are always courts to be adorned and Queens and Princesses to be dressed throughout the rest of Europe.

Mr. Worth is noted for his unvarying patience with his most unreasonable customers. He is never known to use hasty language, but if pushed beyond his control he quietly leaves the room and waits until his customer has discovered what she wants, or concludes to conduct herself in a more reasonable manner. He has a quick eye and a wonderful taste in the combination of colors. In this lies largely the secret of his skill and the success which he has attained. Mrs. Hooper says that he observes the blending of hues in Nature and gains many valuable ideas in this way.

Women who have entered on this work for a living might learn a lesson from these facts. It is as necessary to use brains in the making of a dress as in the painting of a picture, the writing of a book, or the building of a cathedral. There may be but one Worth, but the opportunities to win a success that means independence are absolutely numberless; yet no woman should undertake dressmaking unless she has some fitness and a desire to do something more than merely to get the money which she earns. It is with this as with all other employments for women, or, in fact, for men, for the same rules govern both sexes—success can only be obtained by aiming at the highest accomplishment.

PHYSICAL EXERCISE.

Grace and Beauty Thus Secured.

American women, it is said, are becoming physically far more beautiful in form, more graceful in movement, and with much greater vigor than in days past, the result, it is thought, of out-of-door exercise in the way of walking and the playing of games that require continuous muscular movements, and are also a great source of amusement. Add to this the physical exercises which have become a part of education through the efforts of many who see the necessity of greater strength and better development of the mothers in our country, and the desirable result is obtained.

Physical culture now takes a most important part in the training of the young of both sexes. The most popular method is that which is called the Delsarte System of Expression, which includes a series of gymnastics that is designed to strengthen and relax every muscle of the body. It does not, like many other methods, produce hardness and inflexibility, but rather grace and ease in every motion. The pupils not only learn to strengthen and relax the muscles but also to control them. They are taught to use all of the muscles of the body, thus rendering them strong and flexible.

The Delsarte System is said to preserve youth, and it does so in this way: Old age is really only a stiffness of the joints and sinews by disuse; prevent this and there is no reason why years should destroy the elasticity of the body which now is supposed to belong only to youth. No matter how many years may have passed over an individual, if they are not accompanied by a slow, ungraceful gait and awkward movement, they will not be counted, except by those who are familiar with the fact of their passage.

This training should be began with children very early. Their clothing should be of a nature to allow perfect freedom of motion, and they should be taught to assume graceful and natural attitudes; nor is this by any means so difficult a matter as many mothers imagine. It is like everything else worth having, to be obtained by watchfulness; but no more effort is required in this direction than in that of any other good thing which parents desire their children to possess.

None of the exercises in this system are violent, but they tend in every way to develop a natural, easy, and graceful movement. They teach proper habits of respiration and develop the chest admirably; they prevent all straining of any single part of the body, but show the best way to make every bone, every muscle, every sinew do its own part in the motions of the body. One writer says: "This grand system of culture, in giving us perfect control of our bodies, rouses thought, use, and a keener sensibility; and here we enter a second department of work, the limitless study of expression. This was the great aim of Delsarte's life, for which these preliminary exercises were but the preparation—the beginning for a great end, which was to be the full, artistic, soulful, outward expression of the inward emotions. By exercising the facial muscles, we teach the countenance to express and the eyes to glow with the intelligence of the thought within; and by the same process the fingers become sensitive to feeling, giving delicacy to the touch and symmetry to even an ugly hand."

This seems to be claiming a great deal, but there is no question of the truth of what is thus so strongly asserted.

FOR BUSY FINGERS.

Some Pretty Things for Making Home Attractive.

TRAVELING SHOE BAG.

Cut two pieces of gray linen, one 18 inches long, the other 13 inches, and each seven inches wide. Round both ends of the longer and one end of the shorter. Lay them together and bind them with brown silk braid, feather-stitched with scarlet. Then turn the longer piece over the shorter like a pocket-flap and fasten with a button and loop of the braid. Embroider on the back with scarlet silk the words, "Goody Two Shoes." For a pretty bag for slippers this may be made in white linen duck, embroidered in white silk or any preferred color.—JIM.

DENIM SOFA CUSHION.

Get two squares of blue denim of size desired for cushion, put an inch deep hem around both. Have the one designed for the top stamped in large figures. Outline these figures with heavy white cotton cord. Put a puff of white cheesecloth around the edges of cushion. Work eyelets in cover and lace over cushion with white cord and tie, finishing ends with tassels.—JIM.

CUSHION FOR ROCKING-CHAIR.

Use golden brown velveteen. Put on this with fancy stitches of silk a lengthwise band of gray linen on which is embroidered in shaded reds and greens—roses with buds and leaves. Use the Roman floss.—JIM.

BISCUIT NAPKIN.

Take a square of white linen or Momie cloth 27 inches by 27. Fringe it all around to the depth of two inches. Embroider all around the square a vine in dark blue etching silk. On two corners etch the words "Hot Biscuits."

BUTTERNUT HAIR-RECEIVER.

Cut from cardboard three sections shaped to represent the three sides of the nut. Cover smoothly with yellow silk. Join the sections with overhand stitches with the exception of the edges that come at the top where the receiver is open. Decorate the seams and edges with a fluting of narrow yellow ribbon. Fasten ribbons at the sides with bows and also a bow at the point of suspension.—JIM.

SHOE BOX.

Line a pine box of suitable size with turkey-red calico. Cover the outside with crash worked with red crewels. Cover the edges with narrow black velvet, secured with gilt-headed nails.—JIM.

BREAD OR CAKE DOILY.

Make a 10-inch square of sheer hem-stitched linen. In the center etch with pale blue etching silk the word, "cake" or "bread." Embroider a few scattering sprays of forget-me-nots upon it. This doily is to throw over the bread or cake.—JIM.

RIBBON ORNAMENT.

Take a half dozen strips or more of No. 7 ribbon, different colors, unequal lengths. Arrange in loops and ends at the top. Point the other ends and sew tiny gilt bells on them The ribbons, though different in color, must harmonize.—JIM.

NECESSAIRE.

Four strips of ribbon of unequal length are arranged in loops at the top. At the ends of the ribbon are attached, to one a round pincushion, to another a small bag for holding thimble and cotton, to the third a glove darner, and to the fourth and longest a pair of scissors. Scarlet is a pretty color to use, but one can consult her own taste in that.—JIM.

SCRAP BASKET.

Put a puff of blue China silk around the top and fasten a bunch of red or pink artificial flowers at the side. A bunch of red cherries with green leaves is very pretty. Should you chance to have a basket a little broken at the top, the puff will cover it.—JIM.

At Home.

Stay, stay at home, my heart, and rest—
Home-keeping hearts are happiest!
For those that wander they know not where
Are full of trouble and full of care—
To stay at home is best!

Weary and homesick and distrest,
They wander east, they wander west,
And are baffled, and beaten, and blown about
By the winds of the wilderness of doubt—
To stay at home is best!

Then stay at home, my heart, and rest;
The bird is safest in its nest.
O'er all that flutter their wings and fly
A hawk is hovering in the sky—
To stay at home is best!

An Entertaining Parlor Game.

Amateur poets may find a good deal of encouragement in several parlor games. Crambo is an old friend of those who rhyme, and sometimes of those who cannot. There is a new game, or at least an adaptation of an old one, in a rhyming game which the listener saw a quartet of young people playing about a library table. They all began together, wrote a line apiece, exchanged papers; each wrote a second line and exchanged again. The third line must rhyme with the first; the fourth with the second. When the first grist of stanzas was finished, four exchanges of papers having been effected in the course of their writing, the results were read. The absurdity of these stanzas was not intrinsic. It depended chiefly on the rhymes really being achieved, and with nonsense in them; their spice was in the moment of their production and in the merriment of their reading, but it was piquant and tickled the palates of the four young people.

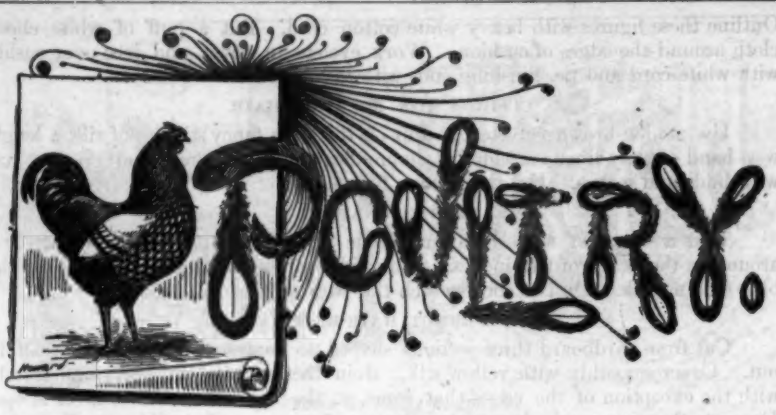
The four young people laughed a good deal. When four hands each have a finger in the pie there is proof in the eating of it. Three of the accidental nonsense stanzas are given, as a pattern for other rhymesters in search of employment of this sort, not from their merit. Not one of the four who wrote these lines would mind acknowledging that they have only relative merit:

Miss Jenkins had a bonnet;
'Twas made of bright pink chip;
She had a cabbage on it,
And a beetle that could skip.

The goldbug and the pollywog
Went waltzing down the sky,
And fell ker-plunk in an Irish bog,
Then hung on a line to dry.

John and Thomas loved each other
With a wild, adoring love;
But they thrashed their dear old mother
With a double-boxing glove!

—*Boston Transcript.*



SITTING HENS.

Preparing the Nests, Managing the Brooding.

EDITOR AMERICAN FARMER: Poultry keepers are now saving eggs to put under the first hens to become broody. The degree of success with these and any other settings will depend in a great measure upon the amount of judgment used in mating the flock and keeping it in a healthy condition. If the fowls are too fat or too poor, or about 50 females are allowed to run with one male, a large proportion of the eggs will not be properly fertilized. There should be about one male to every 15 females, if the fowls are a large breed (about 20 females if a small, active breed), to insure fertility. As the male influence may be looked upon as half that of the mating, the specimens of this sex should be carefully selected. They should be well-formed, active, and have every indication of ability to transmit vigor to the chicks bred from them. A bright eye, a red comb, and an elasticity of motion are signs of perfect health and consequent prepotency. Hens, unless of a very precocious breed, do not mature until after the second year, and it is therefore better to save the settings from those that have passed that period. Their eggs can readily be distinguished from those of younger females, being much larger. The eggs to be used for hatching should be packed with the large ends down, as they will keep longer in that position; and kept in a room where the temperature is not likely to fall far below the freezing point. If the date is marked upon the point of each one when gathered from the nest, by placing them in this way one layer deep a glance is sufficient to select the most suitable ones for setting. As the chick during incubation subsists upon the materials of which the egg is composed, and the quality of these depend upon the food and assimilating power of the hen at the time of producing, it is important that the flock should be in perfect health during the breeding season, and have sufficient nutritious food. Upon farms where there is a good range a light feed of scalded middlings or corn chop in the morning and whole grain at night will keep the fowls in excellent condition during mild weather.

It is better to set only a limited number of hens and use every reasonable precaution for successful hatches than to set a great many of them in a careless manner. Every sitter should have a well-lined nest, and all the eggs put under her should have strong shells to prevent breakage. If any of them are broken, others in the setting that become smeared with the contents should be washed in tepid water. If eggs are scraped or tapped together those having thin shells can be detected by the metallic sound. A comfortable place for an early sitter can be made by partly filling a barrel with fresh stable manure, covering this with several inches of loam, then making an excavation in the surface and lining it with broken straw. Cut straw or cut hay should never be used for a nest lining, as the sharp ends, coming in contact with the hen's breast, will annoy her and sometimes cause her to leave her eggs.

Every year one hears complaints of the season being unfavorable for hatching eggs; but if the eggs used for setting are from vigorous stock, properly mated, and the sitting hens get good attention, one year will be about as favorable as another. —H. R. STEIGER, Laurel, Md.

Poultry-Yard Scrapings.

The scrapings from the yards—that is, the earth that contains decomposed manure—will be found excellent for all kinds of flowers, and to save such material for that purpose will recompense for the work done. Such scrapings do not consist wholly of droppings, for there is always quite a large proportion of the food wasted when it is fed in troughs, and this food, if of grain, is of itself quite valuable when in the condition as it exists on the top soil. By scraping the yards first and then spading them the yards will be in better condition for the hens.

Pickings.

Dark feathers usually cover dark skin; hence dark-colored chickens are unpopular at the table.

Size and condition count far more in market than any particular shape or color, especially with young poultry.

Fowls kept in small coops are always healthiest and pay the best. Twelve hens to a coop 10 feet square are quite enough.

Boiled potato parings and cabbage, with enough corn meal added to take up the moisture, will be greedily eaten by the chickens.

The hen that sings is the hen that can be depended upon to do her best to pay her way. She has vigor, and it comes out in her voice.

Geese will be more extensively bred on the farms this season. Farmers have their eyes on geese culture; it means something and you will see it.

Have you lots of hay chaff that you do not know what to do with? Throw it into the hen coop, first placing a pint or so of small grain on the ground.

In using meat avoid the fat portions, as they are more detrimental than beneficial. It is not necessary to give meat more than three times a week. A pound for 20 hens is sufficient for a meal, but for ducks it may be doubled.

Vigorous, healthy fowls may almost always be detected by the rich color of comb—a sure indication of health. The comb always loses color as diease approaches its worst stages, in some instances turning black.

Rose Comb Langshans is the name of one of the latest breeds. In all respects it is similar to the Langshan as generally known, except that instead of a straight single comb it has a rose comb, which, in the opinion of many breeders, greatly enhances the appearance of the head.

It is unwise to enter into the business of artificial hatching without a flock of good laying hens to back you up in your movements. Particularly in cold weather fresh eggs are hard to obtain in quantities, and so high that it is necessary to keep a good many layers close at hand to draw from.

For the past year we have fed our hens chopped clover, mixing with barley meal and shorts after scalding in the morning. It makes the hens lay grandly. When we fed boiled potatoes and other vegetables the hens were always wanting to sit—now the trouble is to get them to stop laying long enough to hatch out a brood of chickens.

The fault of early chicks does not often lie in themselves but in their progenitors. Let the breeding hens have plenty of exercise and outdoor running every day, regardless of cold, as well as liberal feeding. In connection with grains in variety, green foods and grits are primal requisites to vigor.—*Northwestern Agriculturist.*

He was Too Good a Boarder.

Young Man Lodger—Will you marry me?

Landlady—Let me see. You have boarded with me four years. You have paid promptly. You have never grumbled at your food. No; I cannot marry you.

"Perhaps if I had acted like Duffer and abused the coffee, grumbled at the scarcity of butter, always been a month behind in pay, you would have married me."

"Yes, perhaps I would. As it is I will marry Duffer."

"What?"

"Yes, I will marry Duffer. He needs some discipline. You are too good a boarder to put on the free list."—*London Tid-Bits.*

For Chapped Hands.

EDITOR AMERICAN FARMER HOUSEHOLD: One of the best preparations we have used for chapped or rough hands is equal parts of lard and coaloil, the lard to be melted and poured into a bottle, add the coaloil, the two forming a cream like mixture. Perfume of any kind can be added, but for all practical use it is just as good without. To people in the country a recipe composed of articles already in the house is worth more than one calling for a trip to a drugstore, perhaps miles away.—LOUISA FUNSTON, Gove County, Kan.

Intensive Farming.

EDITOR AMERICAN FARMER: Devoted as we are to all branches of farming (baby farming not excepted), and taking a lively interest in new varieties, noticing intense farming is attracting attention we naturally want to investigate. Consulting Noah Webster it is found to be stretched or strained, which excited our curiosity to see the practical working of the system. After quite awhile making inquiry, we struck a trail and found an intensive farmer in his barn. He seemed to be in a bad humor, but owned up that he was an intensive farmer and was worried. He said his sow had piged and only had 12 pigs, and one of them was undersize and just died after intense attention. We asked him how many he expected. He said she had two rows of teats of seven each, 14 pigs, and had made a loss of nearly 25 per cent. He had sent after a veterinary surgeon for his cow that he soon expected to be fresh. She had an immense stretch of udder. He had taken three gallons of milk from it, and it looked like there might be a half bushel more unstrained in it, with a great deal of fever. He also said his horse was down in his stall and wanted a hypodermic injection to make him get up and stretch himself. He showed his turnips and pumpkins that were whoppers. Not having a tape line, would not like to give his stretched figures; but his strawberries, he said, would girt six and eight inches, and would we please excuse him for he was giving intense thought to his hens to make them lay an egg every day and double the size of them. After saying good-by we thought he was not a fair specimen and would like to hear from others that have had better luck in their investigation.—JOHN E. CAKE.

Saving Old Sheets.

EDITOR AMERICAN FARMER HOUSEHOLD: Like most economical housekeepers, I make new sheets out of old ones by tearing them down the middle and overhanding the outside edges together. I have heard of some cutting them across and sewing the ends together to make them last longer, but I don't like so many seams in mine; so I make pillow shams out of the good ends. In the evening, when I turn down the beds, I spread my shams over the pillows, tuck it in good and snug, so that a little rolling about wont displace it. In the morning, when the beds are made up, the pillow cases are comparatively fresh and clean, besides a saving in the wear.—L. F.

Patents for Plant Novelties.

Representative Bacon, of New York, proposes to extend the privilege of taking out patents to discoverers of any new and useful plant, fruit or flower. In a bill for that purpose he provides that the inventor or discoverer shall make application for his patent to the Commissioner of Patents, at the same time filing with the Secretary of Agriculture a written description of the article, and also a description of the manner of making and using it. The patent is to be issued by the Patent Office, but the Agricultural Department is to share with the discoverer the benefits of the discovery.

A MODEL DAIRY.

Vice-President Morton's Establishment at Ellerslie, N. Y.

The building, which is a model in every respect, includes in its furnishings a butter accumulator and separator. These, with the churn, are run by a four horse-power steamengine. Separating the cream from the milk is accomplished by centrifugal force, a machine called a separator being used for the purpose. The milk is taken into the separator while it is revolving at the rate of 7,000 revolutions a minute. The milk, being heavier than the cream, is forced to the outside, while the cream, being lighter than the milk, rises to the top and there escapes, while the milk goes out of an opening in the side. This cream is allowed to stand until it has just begun to turn, when it is put into the immense churn, which has a capacity of 60 pounds of butter, and in a short time is ready for the packing-room.

A new machine, the butter accumulator, is being tested there, and instead of separating the cream from the milk separates the butter from it at the rate of from 25 to 30 pounds an hour. The milk passes through the separator into the accumulator, which revolves at the rate of nearly 8,000 revolutions a minute. The tremendous centrifugal force thus attained separates the butter, and it comes out of a spout in granule form, falling into a tub of water heated to the proper temperature. Here it is gathered the same as any other butter would be. It is claimed that the butter made with these modern appliances is far superior to the old style of firkin butter, and the time saved will pay for the cost of an accumulator in a very short time.

The breed of cattle kept at Ellerslie is registered Guernseys, many of which are prize-winners. The average yield of each cow is from 5,000 to 7,000 pounds of milk a year, or from seven to 10 quarts a day. This milk tests from 6 to 7 per cent. butter. At present, with about 45 cows in milk and after supplying the employes with milk for their own use, the butter yield is from 40 to 50 pounds a day. To make this amount of butter it requires in the neighborhood of 300 quarts of milk. To obtain such results much depends on the feed used and the care taken of the cattle. The feed used is ensilage, equal parts by weight of bran, cornmeal and ground oats and a half pound of oilmeal.

Churning.

It is very important to stop churning at the right time. Churning after the butter has come will injure the butter. These round grains are solid butter; there is no milk in them; the milk is around these grains. At this stage the milk is easily washed from the butter. Never put your hands in the butter. Draw the buttermilk off, put enough cold water in the churn to float the butter; revolve the churn a few times, or agitate it by shaking or rocking it gently; draw off the water and repeat the washing with pure, cold water three times, and the milk will all be washed out. Put one-half ounce of dairy salt to the pound, work the salt in only enough to get the water out; the less butter is worked the better. It is impossible to work all the milk out of butter, but it is no trouble to wash it out. Water and butter will not mix; the water is easily worked out. Unnecessary working mashes the grain and ruins the butter; continuous working, mixing, and smearing changes it from butter to grease, causes it to lose its flavor, and ruins its keeping qualities, and very soon it will assume a cheesy smell and taste, and later on it will have a very pronounced and repellant odor.—*Philadelphia Press.*

Skimmings.

The first requisite of a profitable dairy are good cows. It will not do to trust wholly to breed to secure these; the individual cow must be the subject of close investigation. The next import requisites are proper feed quarters. Within certain bounds, the more nutritious food and comfort can be given a cow, the greater will be her yield of milk.

Hemlock sawdust has a very slight value as a fertilizer, but if entirely dry it makes an excellent bedding for stock, and by absorbing a quantity of liquid manure, becomes valuable.

The drift of the scientific mind seems in favor of watering animals after feeding.

The Chicago *Tribune* says that the oleomargarine law is a dead letter in that city, and dealers make no concealment of disregarding it.

For cattle-feeding peas are sown broadcast, about two bushels to the acre. They can also be sown in drills and cultivated by horse-power. Good wheat land is suitable for them.

Sunflower seeds make excellent cow-feed. They are best fed ground; one bushel of seed to five of oats, barley or rye. Fifty bushels can be raised on an acre. Cows are very fond of them.

Frosted milk can never make good butter.

Bran softens butter, corn hardens it.

The best churning temperature is 60 degrees.

Feeding poor cows poor food, to make poor butter for poor prices, is the best way of making certain that you will always scratch a poor man's head.

So far it has not been shown that cows do any better on chopped hay than on that which has not been chopped.

The English are complaining that butter shipt from America is too often short in the pretended weight. This probably only a part of the general lying warfare against American food products.

New Zealand is becoming a strong competitor in the world's butter market.

THE ORCHARD.

Pear Blight.

This disease is produced by living germs, and finds an entrance to the tree through the growing tips of the branches, the flowers, and through cracks or openings in the bark. It can be readily cultivated in the laboratory, and from thence, after having been grown there for several generations, can be carried back to the tree and produce the disease. This has been repeatedly done in experiments carried on at the Missouri Station, as described by Mr. Clark, the horticulturist, but all attempts to produce the blight by covering the leaves with the living germs of the disease resulted in failure, although it was easily done by other methods. No effective remedy for the disease has yet been found. The copper mixtures recommended for the germ diseases of most other cultivated fruits do not seem to prevent pear blight. Cutting away the diseased parts and burning them has been found the most effectual way to check its spread.

From a diagram of the pear orchard of the Missouri Station, planted in 1881, it appears that the first tree blighted in 1889 near the southeast corner of the orchard. From this the disease spread in 1890 in the direction of the prevailing winds. The prevailing winds during May, June, and July were from the south, southwest, and west. The western half of the orchard was least affected by the disease. Of 19 trees planted in the south and in 1891 only one shows the blight. Healthy shoots or suckers growing from the base of trees practically dead from blight show that the blight attacks the tree from above and works downward. There has been but little difference in the blighting of dwarf and standard trees, and all varieties were affected in nearly the same degree.

Spraying.

Now is the season for laying out the spraying campaign. Study the question now thoroughly, and get the sprayer and the materials. The finest and strongest sprayer that will reach the points desired should be used.

There are two leading insecticides—the arsenites and kerosene emulsion. The arsenites are Paris green and London purple. One pound to 200 gallons of water is a good proportion for apples, pears, potatoes, etc.; one pound of Paris green to 300 or 350 gallons of water should be used on peaches. Says the same authority, never use London purple alone on peaches. For apple worm, begin to spray just as soon as the blossoms fall.

Kerosene emulsion is the weapon to use against all kinds of plant lice out of doors. The formula given is, soft soap, one quart; kerosene, one pint; hot water, two quarts. Churn the materials by pumping back into the pail for several minutes. Dilute two or three times.

There are two leading fungicides—ammoniacal carbonate of copper and Bordeaux mixture. For Bordeaux mixture use six pounds sulphate copper, four pounds lime, 22 gallons water. The only successful combination of insecticides and fungicides yet found is made of the arsenites and Bordeaux mixture. When arsenites and ammoniacal carbonate of copper are combined the foliage is usually seriously injured.

Prof. Budd's Recipe for Grafting Wax.

One pound of best white rosin and one pound of beef tallow melted very slowly so as not to harden. When melted take the dish from the stove and add slowly, while stirring, one tablespoonful spirits of turpentine. Then slowly add alcohol, while stirring, until the mass has a thin, molasses-like consistency. In this form it is useful for painting over wounds of trees caused by pruning, breaking, or other injury; and it is also an excellent wax for use in waxing collar grafts of the cherry, plum, and pear. When the alcohol has evaporated too much from exposure to the air, place the dish in hot water and add alcohol as before. This wax may also be used with perfect success in outdoor grafting of the cherry and plum, by keeping the dish over a lamp in a lantern-like tin-box, and wrapping a white rag over the wax while it is still soft, to prevent its possible melting or cracking.

Western New York Horticulturists.

The old officers were unanimously re-elected at the annual meeting of the Western New York Horticultural Society. Pres., William C. Barry, of Rochester; V.-Ps., S. D. Willard, Geneva; W. R. Smith, Syracuse; George A. Sweet, Dansville; C. L. Hoag, Lockport; Sec.-Treas., John Hall, Rochester. Chairmen of Standing Committees—John J. Thomas, Native Fruits; George Ellwanger, Foreign Fruits; Wm. C. Barry, Nomenclature; Geo. Ellwanger, Ornamental Trees and Shrubs; Dr. J. A. Lintner, Entomology; Prof. H. H. Wing, Garden Vegetables; Chas. A. Green, Ornithology; Prof. D. G. Fairchild, Botany and Plant Diseases; Dr. G. C. Caldwell, Chemistry; Chas. Little, Flowers and Bedding Plants. There was a large attendance. With other matters brought before the meeting was that of petitioning the Legislature to pass a stringent law against black knot, with more efficient regulations than is the case with the present peach-yellow law.

Cullings.

Every care should be taken that the roots of transplanted trees are not exposed to either sun or wind.

The perfect apple is of medium size.

Growers are regarding with much favor the Frederick Clap pear, which ripens in October.

Low-lying lands should, as a rule, be avoided for fruit trees. In general, the best results are obtained on high ground, when the soil may be too rough for other tillage, yet reasonable fertile.

The best fertilizer for an orchard is stall manure mixed with wood ashes or some phosphate mixture.

Disgusted With Them.

Excited Messenger—Pat, that curly-headed Corsican fiddler has run off with your wife.

Pat (smoking away imperturbably)—Be gum, thim furriners is satisfied wid most anything (puff) if they can only sthale it (puff), ain't they?—*Chicago Tribune.*

Get up a Club for THE AMERICAN FARMER.

Chapel Windows.

EDITOR AMERICAN FARMER: I was much pleased in looking over the last number (Feb. 1) of THE AMERICAN FARMER to see so many of the old names once more. Not but our new editor has given us ample proof that he can run the paper without any of our help, but since he has given all a cordial invitation to write, and does not toss "our little nothings" into his waste-basket, let us do what we can to help each other. What would Berrie think of painting her chapel window with transparent paint that comes on purpose? It seems to me it would be nice painted in bright, rich colors, crazy patch-work pattern, or if tired of that, paint diamonds or stars; or if that would take too much skill paint each pane a solid color.—L. FUNSTON.

A Successful Dairyman.

Mr. Covert is one of the most successful dairymen of Orange County, New York. He went into the business in 1876, without any previous knowledge of farming, and of course lost a great deal of money. Then he looked around him and saw that the dairymen who were most prosperous, and had least to say about hard times, were owners of blooded stock, which they fed liberally. He followed their example. He has now a herd of full-blooded Holsteins, ranging from two to eight years old, that yield an average of 9,252 pounds of milk per annum. He sells his milk in New York at an average of 1¼ cents per pound, making an average of $113.65 for each cow. The calves run the average receipts up to $140.65, and the account he kept with each cow for the year footed up thus:

YEAR'S FEED PER COW.

7,200 lbs. brewers' grain, per ton...	$2 25	$8 10
1,440 lbs. bran, per ton.....	17 50	12 53
960 lbs. cob meal, per ton.....	20 00	9 60
5,000 lbs. hay, per ton.....	8 00	20 00
1,000 lbs. middlings, Summer feed, per ton.....	24 00	12 00
Total.....		$62 23
Amount Cr. to cow.....		$140 65
Amount Dr. to cow.....		62 23
Profit per cow.....		$78 42

The manure was considered sufficient to pay for the care, housing, and milking.

Minnesota Wheat Crop a Failure.

February reports from southern Minnesota indicate that the Winter wheat crop will be almost a total failure. Many fields appear brown and dead, owing to the light snow and constant violent changes in temperature. At least 50 per cent. of the grain from Winona County westward will be plowed up and Spring wheat sown.

Care of Wheels.

A correspondent writes: I believe that if the felloes of wagons were treated once a year with boiling oil the tires would never need to be cut and set. I had a pan of galvanized iron made, four inches wide, with curved bottom, and long and deep enough so that when a wheel is set in it a section of the felloe about a foot long will be completely covered with oil. I dig a little trench in the ground, fill it with chips, pour a little kerosene on it, set the pan over with linseed oil in it, and start the fire. As soon as the oil is boiling I set a wheel in it and let it stand a few seconds, then turn a little, and so go round with the wheel until all the felloe has been thoroughly saturated with the boiling oil. The wood gets so filled with this that no water can enter, and your tires will remain tight. If this is done before the tire gets loose it will be satisfactory, but it will not tighten tires "so loose that you can see under them."

Mange in Sheep.

Mange, scab or itch are produced by parasites, which either burrow beneath or live among the scabs. The *Veterinary Adviser* recommends the following dip or bath: Tobacco, 16 pounds; oil of tar, three pints; soda ash, 20 pounds; soft soap, four pounds; water, 50 gallons. Boil the tobacco and dissolve the other ingredients in a few gallons of boiling water, then add water to make 50 gallons, keeping the temperature to 70 degrees Fah. This is sufficient for 50 sheep. Keep each sheep in the bath three minutes, and during this time break up the scabs and work the liquid into all parts of the skin. When taken out of the bath stand the sheep upon a sloping drain, squeeze the liquid out of the wool, letting it run back into the bath. A second or third bath may be necessary, and all wood-work and everything with which the sheep have been in contact, both in sheds and pasture, must be treated to a similar wash, or the surroundings of the animals must be changed.

Estimated Production of Wool.

The Boston *Commercial Bulletin* recently gave official figures showing the number of sheep in the country, by which the clip of 1892 can be forecast with some exactness. The official figures show that the total increase in sheep is 1,519,229. Expert estimates from these figures give the total yield of the United States in 1892 at 316,053,731 pounds, or, estimating the shrinkage of pulled wools at 40 per cent., a scoured yield of 141,096,937 pounds. This is an increase of 12,652,224 pounds "in the grease," or 6,000,000 pounds scoured.

The Plum Curculio.

Prof. Riley, of the Massachusetts Horticultural Society, says of the plum curculio:

"There is but one generation produced annually. The beetles hibernate under leaves or bark, in woods or other sheltered places near stone-fruit orchards. They issue from such Winter quarters as soon as or before the buds put out in the Spring. Both male and female feed on the tender foliage for some time before the females have a chance to oviposit in the young fruit. While the nights are cool they hide under any shelter within reach. Where the base of the tree is kept clean and the earth raked, chips laid round under the trees form a most satisfactory trap for them, as in the early morning they are somewhat torpid and easily killed. Later in the season the jarring process is one of the most satisfactory ways of securing an uninjured crop of fruit. It may be safely asserted to-day that spraying against the plum curculio is only partially successful, and the same may be said of other *rhynchophorus* or snout-bearing beetles, which injuriously affect fruit, viz., the quince and the apple curculio and plum-gougers."

New York and New England Agricultural and Industrial Society.

This Society held its annual meeting in Albany Feb. 3. The Treasurer's report showed that there had been $21,606 received; $9,612 paid for premiums; expenses, $9,548; notes paid, $2,300; cash on hand, $146.

The following officers were elected: Pres., James K. P. Pine, Troy; V.-Ps., George L. Stedman, Thomas Dickson, Thomas R. Proctor, Andrew A. Mather, Frederick W. Jones; Sec., Jacob C. Cuyler, Albany; Treas., George H. Treadwell; Executive Board, George N. Bissell, John H. Farrell, Edwin C. Rowley, Edward Murphy, jr., John H. Bagley, Frank Van Deusen, James W. Cox, jr., Albert C. Phillips, A. H. Sweny, Henry Van Dreser, William H. Terrell, I. V. Baker, Theodore M. Amsdell, Shepard Tappen, Charles P. Sanders, jr., Inspectors of Election, Thomas J. Wood, Eugene A. Van Pelt, Henry S. Ambler.

The next Fair will open on Monday, Sept. 19, and close on Saturday, Sept. 24.

Of Course He Had.

An invalid up town was walking out with his wife the other day, when a man met them and very effusively shook his hand.

"Ah, how do you do? How do you do? How is your health now?" exclaimed the man.

"None of your business," snapped the invalid, and jerking his hand away he hurried off with his wife.

"My dear," she said, reprovingly, when he had slowed down so she could speak, "why were you so rude to him? He seemed very anxious to know how you were."

"Rude, nothing," growled the invalid, "I've got a right to be. That chap is the new undertaker who opened a shop up in our neighborhood last week."—*Detroit Free Press.*

Bits.

Tiger bones are among the curious things in the commerce of China. They are used as a medicine and supposed to possess tonic qualities.

The frog, owing to its peculiar construction, cannot breathe with the mouth open, and would die from suffocation if it were kept open forcibly.

A country parson in England has written 125,000 begging letters. His wife has sent as many as 11,000 and his children a few thousand more. About one person in 50 responded, one to the amount of $25,000.

If seed beans are stored away with a plentiful intermingling of sassafras bark there will be no trouble from the weevil. Late planting is also a protection from the weevil.

Farmers should not under-estimate the value of lime on the soil. In many conditions it is invaluable. Along with potash it forms the largest part of the saline or mineral constituents of every plant. Consequently, it must always be present in the ground in a soluble condition, so that it can be taken up by the plant's feeding organs. It also breaks up insoluble compounds of silica and phosphoric acid, and enables them to become plant food.

FAIRLEE, KENT CO., MD., *Feb.* 1, 1892.

I have been successful in growing some large crops of potatoes by selecting the land that is adapted to the variety grown, generally a light clay soil a little rolling. The acreage of land given to the potato crop has largely increased lately or since we find that they can be grown better in quantity and quality with fertilizers than with stable manure. The last two years I have planted my early potatoes in November on a clay soil mixed with a little sand, generally a wheat stubble, plow six inches deep; make rows three feet apart and sow in them 600 or 700 pounds of Powell's Green Bag Fertilizer for Potatoes, drag a little dirt in now, plant potatoes 13 inches apart and cover with plow. Then cover with straw six or eight inches deep, which I leave on until the 25th of March.

My late potatoes are planted about the 10th of June, in the same way, except that I use no straw after planting. I roll with a heavy roller and let them stand until I see them coming up, then drag them with a harrow and continue working them with cultivator until I notice small potatoes as large as a hen's egg; then plow them deep and dress up with hoe. I generally dig them the first of October, using a plow and drag harrow to uncover them. I have found that to grow nice, smooth, saleable potatoes, I must use fertilizers and no manure.

My crop of 1891, on one and a half acres grown as above, was 1,300 bushels of nice, smooth, marketable potatoes.—GEORGE W. BRAMBLE.

Overlooked.

"Honestly, now, Maria, didn't I fool you at first when I came in with my beard shaved off?"

"Not for an instant. If you had only changed your brand of whisky I might have been deceived."—*Indianapolis Journal.*

THE WOOL TARIFF.

It Benefits the Farmer and it Should be Maintained.

FRAUDS BY IMPORTERS.

Inequalities That Should be Remedied. Present Condition of the Wool Industry. Reasons Why Wool Has Been Low—Recommendations for the Future.

[Address by President Lawrence, of the Ohio Wool-Growers' Association, at its Annual Meeting in Columbus, O.]

One of the most interesting meetings in the history of the Ohio Wool-Growers' Association was held in the Senate Chamber at Columbus, O., Jan. 12. About 100 representative sheep-raisers of the State were present, besides many members of the Legislature and many farmers from all parts of the State. The annual address of Pres. Hon. William Lawrence was listened to with marked interest and excited much applause.

PRESIDENT LAWRENCE'S ADDRESS.

GENTLEMEN OF THE OHIO WOOL-GROWERS' ASSOCIATION: One year ago I was honored by this Association by a unanimous election as its President. Since then I have endeavored to discharge the responsible and somewhat arduous duties of the office according to the best of my ability, and I am now here to give you some account, first, of the condition of the wool industry in Ohio; second, of the effect on it of the new tariff act of Congress of Oct. 1, 1890, known as the "McKinley law"; third, of some of the frauds attempted and some practiced on it, and to give an account of some efforts I have made to prevent them; and fourth, to make some recommendations for your consideration.

THE CONDITION OF THE WOOL INDUSTRY.

First. In April, 1884, according to Assessors' returns, there were in Ohio 4,968,749 sheep, of the assessed value of $11,940,720. Under the act of Congress of March 3, 1883, reducing duties on wool the returns of April, 1890, showed only 3,504,800 sheep, valued at $8,913,376, a loss in number of 1,373,994. The new tariff law is so recent that its effect cannot yet be fully estimated, but the returns for April, 1891, show 3,797,041 sheep, a gain of 202,241, which, with Spring lambs, not included in any of the returns, will probably make an aggregate of more than 4,000,000 sheep, after allowing for all sold and used for mutton. The sheep remaining are of the probable value of $12,000,000, owned by about 80,000 flock-masters. The increase in wool product in a year has been 1,213,446 pounds, worth $375,000, from wool alone, besides the gain in mutton sheep and the added fertility and value of lands. The Department of Agriculture estimates the sheep in Ohio at 4,061,897; the wool product of 1891, washed and unwashed, at 20,309,485 pounds, producing 10,154,742 pounds scoured wool. The wool industry is in better condition than any other branch of stock-raising with prevailing low prices, and all things considered, wool-growing, though not sufficiently or even fairly remunerative, is more profitable than the production of cereals under ordinary conditions of the last few years. The present prices are advanced by reason of unparalleled crop failures in Europe and cannot long be sustained.

HOW THE NEW TARIFF AFFECTS THE WOOL INDUSTRY.

Second. The new tariff law has been and doubtless will be of substantial benefit to wool-growers, for three principal reasons: 1. By increasing duties on wool wastes, shoddy, camel's hair, and goat hair unsuitable for combing—all used as substitutes for wools—the imports of these fibers are reduced, thus increasing the demand for wools; and provisions in the new law to prevent frauds in importations aid this result. 2. It increases duties on woolen goods, limits importation, increases American manufactures, and so enlarges the American demand for wools. 3. It increases duties on most kinds of wools and sheep; gives American wool-growers an advantage over foreign, and encourages American production.

THE FIRST OF THESE CONSIDERED.

1. Under the act of 1883 the duty on shoddy and waste was 10 cents per pound; under the new law 30 cents per pound, with noils added at the same rate. Goat hair or wool, by a misconstruction of the old law, was free if not suitable for combing; the new law makes all dutiable at 12 cents. Camel's hair was free under the old law; under the new it is made dutiable according to quality as second or third-class wools. The statistics of imports attest the utility of these improvements on the old law.

The imports of rags, shoddy, mungo, waste, and flocks were for times specified as follows:

Fiscal Year.	Quantity, Pounds.	Custom-House Value.	Duty 10c. pound.	Custom Average.
1887	4,902,381	$1,855,018	$490,238	38.8c.
1888	4,057,731	1,576,013	405,773	38.8
1889, waste	8,478,984	3,389,490	847,898	40.0
1890, waste	4,401,094	1,811,625	440,109	41.0
Rags, shoddy, and mungo	564,172	226,108	56,417	38.7
Rags, mungo. } Nine months ended Sept. 30, 1890	2,599,373	1,063,506	259,937	41.00
noils, flocks, shoddy, and waste } Nine months ended Sept. 30, 1891	141,840	31,977	....	22.54

These prices show that the imports were, prior to the new law, very valuable, chiefly good scoured merino wool, covered by the false name of waste. Thus for the year 1889 these imports were 8,478,984 pounds at 10 cents a pound duty. Most of this—probably 6,000,000 pounds—worth 60 cents per pound, was scoured merino wool manufactured into "ring waste" to evade the tariff; a fraud upon the law equal to more than 16,000,000 pounds unwashed wool, an amount nearly as large as the whole wool clip of Ohio for that year. The McKinley law imposes a duty of 30 cents per pound on "noils, shoddy, and waste." Noils were previously dutiable only as the wool from which they were taken. Synopsis: Decisions 1890. No. 10,495. General Appraisers, 145. The result is waste and shoddy are no longer imported, and wool is made to supply their place. If the law shall be properly administered the import of rags will be small. (Wool Manufacturers' Association Bulletin, December, 1891, page 347.) Here, then, is one fraud ended, resulting in increased demand for wool equal to the product of more than 2,000,000 sheep.

2. In the fiscal year, 1890, there was imported free of duty:

Articles.	Quantity, lbs.	Value.	Custom-House value per lb.
Camel's hair	6,494,323	$1,062,198	16.4
Camel's noils	1,609,936	356,393	22.1
Cattle and all other hair, exclusive of horse and hogs, but including goat's hair not suitable for combing	8,072,884	697,409	08.6
Total pounds	16,177,143	2,116,000	

Here are camel's hair and noils, 8,104,259, pounds used in the manufacture of woolen and other goods, which in scouring shrinks less than wool, and the equivalent of probably 12,000,000 pounds of wool or more, besides goat hair, used in the same way, probably equal to 4,000,000 pounds. The Treasury Department statistics do not show, as they should, the amount of each in detail, but it is safe to estimate that camel's hair and noils and goat hair were imported free in 1890, which supplanted the use of wools, chiefly first and second class, equal to 16,000,000 pounds unwashed, or the product of 3,000,000 sheep. The McKinley law makes goat's and Chinese camel's hair dutiable as second-class wool, and Russian camel's hair dutiable as third-class wool, the effect of which is, and will be, to reduce imports and increase the demand for wool. It is important to observe that the so-called goat's and camel's hair should be more properly, as they frequently are, called wool, since in character and for use they are such. It is probable the annual reduction may reach 4,000,000 pounds, making an increased demand to that extent for our territorial wools. Some cattle hair imported is a formidable competitor with some wools for some manufacturers, and much of it is used as adulterants with wool in the manufacture of cheap carpets and some other goods. It is imported free. It should be subject to prohibitory duties to prevent imposition on consumers of so-called woolen goods, and to secure to Americans the whole market, and because some forms of sheep wool and goat wool will be fraudulently imported as "cattle hair," as in a recent case at Philadelphia. The new law contains provisions, paragraph 379, as to standard samples of wool for custom-houses; paragraph 380, as to class three, wools improved by merino or English blood; paragraph 382, defining unwashed wools, and paragraph 383, containing what is known as the "sorting clause," with others, which it is not practicable now to fully describe, are valuable to prevent frauds.

CUSTOM-HOUSE WOOL SAMPLES.

The custom-house wool samples, under the act of 1867, were selected by George William Bond, a wool buyer for Eastern factories. Under the law immense frauds on wool growers were perpetrated.

The Secretary of the Treasury, upon application of Hon. Columbus Delano and myself, appointed a Commission, with an eminent wool dealer, Edward A. Greene, President, to select samples under the new law. We filed with him and Secretary Foster an argument on sundry points, one insisting that the wool of carpet-wool sheep, so improved by domestication as to have the qualities of merino or second-class wools, should be so regarded. I have not yet seen the samples or the report of the Commission.

NEW LAW REDUCING IMPORTS OF WOOLEN GOODS INCREASES DEMAND FOR WOOL.

Protection to the wool-grower would be of little or no value without "full and adequate protection" to wool manufacturers. These make demand for wools, and the ample protection which the new law, if properly administered, gives them, is one of its chief and valuable features. This protection excludes to a large extent the importation of foreign manufactured goods, and so increases the demand for wool. This is shown by comparing the imports of woolen goods prior to and since the date of the new law. The Treasury Department statistics include in imports of "manufactures of wool" "rags, mungo, flocks, shoddy, and waste," and sometimes "noils," the effect of which is to magnify apparent manufactures and minify all fibers or materials which, as these do, compete with wool-growers, not manufacturers. Excluding these from "manufactures," the imports for specified periods were as follows:

Fiscal Year.	Manufactures of wool. Value.	Wool required to make these goods, estimated lbs.
1887	$42,379,025	127,138,875
1888	45,582,035	133,646,105
1889	49,342,002	148,026,006
1890	52,127,692	156,383,076
Oct. 1, 1889, to Oct. 1, 1890	55,972,031	167,916,093
Oct. 1, 1890, to Oct. 1, 1891	35,601,210	106,803,630

Of the imports for the last year stated, 65 per cent. consisted of dress goods and cloths. Sound policy requires such protection as will give to our wool-growers the privilege of supplying all the wool needed in this country, and to our manufacturers the privilege of making it all into goods. The McKinley law is a step in this direction, and its effect in reducing imports may be seen by comparing those for the nine months before the law passed and the first nine months under it, as follows:

Kind of Goods.	Nine months ending Sept. 30, 1890. Quantity.	Nine months ending Sept. 30, 1891. Quantity.	Nine months ending Sept. 30, 1890. Value.	Nine months ending Sept. 30, 1891. Value.
Cloths, lbs.	12,550,846	8,659,253	$12,447,209	$8,575,862
Dress goods, sq. y'ds.	101,300,940	57,606,473	20,932,553	12,578,010
Knit fabrics			1,073,370	881,451
Shawls			772,429	502,406
Yarns, lbs.	2,973,177	865,609	1,647,364	560,333
Carpets, sq. y'ds.	440,710	518,710	543,776	1,160,998
Clothing, ready-made			1,384,339	1,468,269
All other			5,150,302	1,537,848
Total			$44,540,349	$27,277,416

Here is a decrease in custom-house value of imports in nine months, under the law, of $17,266,175. It is fair to assume that the deficiency in imports has been made up by increased home manufactures, since our population and immigration have increased, and adopting the usual mode of estimating, there has been an increased demand for 45,000,000 pounds of wool on the unwashed basis. Our wool-growers have not supplied all this additional amount, partly because our sheep could not be suddenly increased to do so, and partially because foreign wool-growers, by reducing prices of wool, secured too much of our market, as shown by the following statistics:

IMPORTS OF WOOL.

Nine months ended Sept. 30, 1890:

	Quantity, lbs.	Custom-house value.	Average per lb.
Class 1, merino	16,537,996	$3,888,320	23.51
Class 2, long wool	5,092,000	1,206,551	23.70
Class 3, carpet	55,098,881	6,484,227	11.76
Rags, mungo, flocks, noils, shoddy, and waste	2,599,373	1,068,506	41.00
Total	79,328,239	$12,642,604	....

Nine months ending Sept. 30, 1891:

	Quantity, lbs.	Custom-house value.	Average per lb.
Class 1	31,232,066	$6,006,047	21.15
Class 2	4,670,812	1,007,406	23.40
Class 3	68,919,910	7,628,721	11.10
Rags, mungo, flocks, noils, shoddy, and waste	141,840	31,977	22.54
Total	104,964,618	14,759,751	....

Aggregate increase in nine months ended Sept. 30, 1891, 25,636,379 pounds; increased consumption by manufacturers, 45,000,000 pounds; increased demand in favor of wool-growers, 19,363,621 pounds; increased imports of class 1, 14,694,070 pounds; decrease in class 2, 421,185 pounds; increase in class 3, 13,821,029 pounds.

Custom-house average values less in nine

months 1891 than 1890: First-class wool 2.36 cents per pound, second-class wool 0.21 cent per pound, third-class wool 0.57 cent per pound.

The total imports year ended Oct. 1, 1891: First-class 32,615,329 pounds, second-class 5,343,291 pounds, third-class 94,775,433 pounds; total 132,734,053 pounds. Total imports year ended Oct. 1, 1890, 103,020,737 pounds; increase in 1891, 29,713,316 pounds.

In view of all the facts stated the decrease in imports of shoddy, rags, waste, and goat wool, and the increased consumption by manufacturers, it may be fairly estimated that our wool-growers for the first year under the McKinley law found an increased demand for at least 30,000,000 pounds of American wool. In this estimate the abnormal imports of wool and woolen goods immediately preceding the new law are not specially noted, but the future increase of manufacturing machinery will doubtless counterbalance this, and it is hoped that the increase of sheep will not only keep pace with that but supply a demand which would otherwise be imported.

Other estimates are more favorable. One alleges that for the first 10 months under the new law, as compared with 10 months prior, the imports of woolen goods decreased in value $17,782,868, equal to 53,000,000 pounds of wool; that in the same 10 months the relative increase in wool imports was 17,000,000 pounds, making an increased demand for 36,000,000 "in the domestic demand for wool due entirely to the new tariff." (*Am. Economist*, Nov. 13, 1891.) The facts already given prove what was said in the 26th Annual Report of the National Wool Manufacturers' Association, Oct. 1, 1890, that the McKinley act "has established the conditions of prosperity for manufactures. The woolen manufactures may be said to have gained more than any other under the new law." It is to be regretted that by reason of the opposition of some manufacturers to adequate wool duties the wool-growers have not received equal protection.

FRAUDS ON THE LAW PRACTICED AND ATTEMPTED.

Importers of woolen goods and of wools have devised various schemes to evade the new law, and others to prevent its beneficial operation. In common with other wool-growers I have contributed some efforts to prevent their success.

IMPORTS OF WORSTED ENGLISH COATING.

I. Fraud. Under the tariff act of 1883 a single ruling of the Treasury Department, under President Cleveland's Administration, reducing duties on "worsted" cloths below those on "woolen" cloths, closed many worsted-mills, increased imports, and thus reduced the American demand for the long-combing wools, and to some extent for merino.

This was overruled May 27, 1889, by Secretary Windom, but in April, 1890, the District Court in New York sustained the former ruling. The McKinley act intended to remedy this wrong by increasing the former duty of 18 cents per pound and 35 per cent. ad valorem on worsted goods costing 60 cents per pound to 44 cents per pound and 50 per cent. ad valorem, an advance of 35 cents per yard, estimating a yard at one pound.

To prevent fraudulent under-valuations, section 11 of the customs administrative act of June 10, 1890, requires the customs appraisers to disregard any nominal or fraudulent "market value" in invoices of imported goods and to "ascertain the cost of production," including specified items, with 8 per cent. added for incidentals.

In order to secure control of the American market the worsted manufacturers of England, especially at Bradford, during the last year entered into a huge conspiracy to create a fictitious low "market value" on goods made especially for sale in the United States and thus evade the tariff law.

Bradford worsted coatings were there invoiced at as much as six cents per yard less than the cost of production and less than similar goods were sold for in other markets. It has been justly said that "it is no new thing to find foreign manufacturers ready to flood American markets with goods at less than the cost of manufacture," with a purpose to destroy our manufactures, and having accomplished this, to repay losses thereafter by fixing their own exorbitant prices.

The question was made at the New York custom-house whether these foreign valuations should be accepted, and the Board of General Appraisers, or a majority, in a test case, on the 26th of October, 1891, sustained the importer's invoice valuation, except only in estimating value they disallowed deduction of all commission in excess of 2½ per cent., and made dutiable all in excess of that rate. This action of the Board was based largely on the report of John A. Tibbits, the American Consul at Bradford. (See Vol. 21, December, 1891, *Bulletin Wool Manufacturers*, page 381.) The effect is to permit a fraud on the law, and the Secretary of the Treasury has held "that inasmuch as the decision of the Board of General Appraisers refers to value and not to classification, it cannot be appealed from." As President of this Association I addressed the Secretary of the Treasury on the subject in two communications, Nov. 1 and 9, in the latter suggesting that "if there be no other remedy a Consul should be appointed at Bradford with different views, and that the Board of General Appraisers should be reorganized to secure the enforcement of the law." I published an article in the same general direction in the Philadelphia *Enquirer* of Nov. 15. Unless a remedy is provided Bradford manufacturers will continue their scheme until they secure control of our market. The scheme will prevent the erection of new worsted-mills, will soon destroy existing factories, and largely diminish the home demand and the price for all our long-combing and other wools, prevent the needed increase of sheep, and reduce the mutton supply. If this scheme succeeds its plan can be extended to all woolen manufactures, to third-class wools, and all imports with duty based on invoiced values, and this will result in general disaster. It is precisely the same scheme as reported by our American Consul, Heenan, at Odessa, in operation prior to the McKinley law as to Donskoi carpet wools. I recommend that the Association give an expression of opinion on the subject.

"SORTING CLAUSE" OF THE WOOL TARIFF.

II. Fraud. Every fleece of wool has at least four varieties: the shoulder and rib the finest, the "brich" and "hip-lock" the coarsest, with at least two other intermediate grades. The shoulder and rib wool of our native Mexican, and of all foreign carpet-wool sheep, is good clothing wool, and the noils are fine as merino wool. Under the tariff act of 1883 wool dealers sorted the fine portion of carpet-wool fleeces, and the "sorts" were imported as carpet wool. To prevent this fraud the new law provides that the duty on wool "which has been sorted or increased in value by the rejection of any part of the original fleece shall be twice the duty to which it would be otherwise subjected." This is known as the "sorting clause."

On Aug. 4 last the Board of United States General Appraisers at New York decided that the "sorting clause" did not apply to wools unless they were thereby increased in value. The effect of this will be that third-class wool can be "sorted" so as to be imported at a duty of 32 per cent. ad valorem, when otherwise it might be subject to 50 per cent., and besides, the best sorted portions, suitable for clothing goods, can thus be imported when whole fleeces would not, and thus foreign wool will come to supplant our merino and long wools. It is to be regretted that the President and Secretary of the National Wool Manufacturing Association, always hostile to adequate protection to wool-growers, exerted all their power and influence to practically defeat some of the essential purposes of the sorting clause.

On the 10th of August I addressed to the able and faithful Secretary of the Treasury a request to appeal from this decision, and he promptly took all necessary steps for a review under section 15 of the act of June 10, 1890. (See Decision Gen. App. 797, Syn. Decisions 11,665, 11,692, 11,307.) In too many instances some of the Courts and Appraisers, surrounded with importing and other influences, have ruled against wool-growers.

[In the case of E. S. Higgins & Co. Judge Wheeler, of the New York U. S. Circuit Court, recently rendered the same decision as the Board of General Appraisers. The able Attorney-General, Hon. W. H. H. Miller, has directed an appeal from that decision. So far as the decision of the General Appraisers is concerned, it was only made by three of the nine Appraisers. Free-wool journals do not seem to have much confidence in Judge Wheeler's decision. The Boston *Wool Reporter* of Jan. 28 says it is "not of much value in aiding us in reaching a correct interpretation of the sorting clause as regards other importations." The Boston *Journal of Commerce* of Jan. 30 says of Judge Wheeler's decision: "His premises seemed to be very poorly established in his own mind. It is more of a mess than the law itself. How he gained his sight is not exactly clear."]

THE DUTY ON GOAT'S WOOL OR HAIR.

III. Fraud. The tariff act of 1883 imposed the same duty on "all hair of the alpaca, goat, and other like animals," as on second-class wools. This was erroneously held by a subordinate Judge in Philadelphia not to apply to goat wool not suitable for combing, but the Treasury Department, under President Cleveland, accepted it without appeal, and such wool was thereafter imported free. The new law, by transposition of words, took away all pretext for admitting this wool free, and made it dutiable as second-class wool at 12 cents per pound. (Synopsis Decisions 10,727; Gen. App. 280, 281; Id. 10,770, G. A. 223; Id. 11,408, G. A. 691, June 20, 1891; Syn. Dec. 4,108, 7,999; contra 7,544, 7,614, A. D. 1886).

The Customs Appraiser at Philadelphia, and perhaps others elsewhere, commenced to appraise goat hair not suitable for combing as hair free, and so it was admitted until on my application the Secretary of the Treasury directed otherwise.

In April, 1891, I visited the Philadelphia custom-house and appraisers' stores, and I found that goat hair, under 13 cents per pound in value, was appraised as class 3 wool, dutiable at 32 per cent. ad volorem, and so admitted, although the law distinctly made it dutiable at 12 cents as second-class wool. I immediately called the attention of the Secretary of the Treasury to the violation of the law, and it has been remedied. [But U. S. Judge Colt, at Boston, has just decided that common goat hair should be admitted free. The *Journal of Commerce* of Jan. 16—a free-wool paper—says report is that an appeal will be taken to the Supreme Court; and adds, "should this be done we *feel confident that Judge Colt's decision will be reversed.*" Such decision is so absurd as to deserve condemnation and contempt. Yet it shows the power and influences in operation against wool-growers.]

The *Journal of Commerce* of Feb. 6, referring to the fact that an appeal has been taken, says: "We think the Court of Appeals will reverse the ruling of the Circuit Court"—Judge Colt's decision.

FRAUDS IN SO-CALLED RAGS.

IV. Fraud. The duty on woolen rags is 10 cents per pound. The law should be improved to exclude their import, both to prevent their manufacture into shoddy with which to impose on the public with falsely so-called "all-wool" goods and to prevent the contagion of foreign diseases, and because this provision is used as a cover for fraud.

The Boston *Journal of Commerce* of Aug. 8, 1891, under glaring capitals of "Waste Wanted, New Rebates Allowed," etc., says: "The scraps of [new] knitted cloth cut off in the process of manufacture, and only of use for remanufacture, have been admitted as rags at a duty of 10 cents a pound by the appraisers at this port. When garnetted they form an exceptionally fine stock, and having been classified at the lower rate of duty there is not much likelihood of an appeal"—that is by importers and manufacturers.

An able expert wrote to me, saying as to this: "These clips should be properly classed as waste, dutiable at 30 cents per pound, as they are the waste from knitting-mills. It seems that they have opened a door for frauds that will soon be as gigantic in its proportions as were the ring-waste frauds." I immediately called the attention of the Secretary of the Treasury to the subject. Assistant Secretary Crounse advised me that the Collector at Boston reported that there had "been three small importations of hosiery rags, so-called, usually described in the trade as hosiery 'clips' or 'clippings,' which he and the appraisers decided to pass as woolen rags." Thus the door is opened, for these "clips" are not "rags." And I am not advised of any official disapproval of what has been done. I have some information that leads me to suppose so-called rags will be made to order and a serious blow inflicted on the wool industry, unless rags shall be held to mean fragments of cloth as a result of age and wear.

FRAUD IN IMPORTS OF NOILS.

The new tariff act imposes double duty on

the wool of sheep, goats, camels, the alpaca, etc., "imported in any other than ordinary condition" (p. 383). Alpaca wool is second-class (p. 378), with duty on whole fleeces, unwashed, 12 cents per pound (p. 384). The law then provides that:

"On noils, shoddy, top waste, slubbing waste, roving waste, ring waste, yarn waste, garnetted waste, and all other wastes composed wholly or in part of wool, the duty shall be 30 cents per pound" (p. 388).

The prior act of 1883 did not mention noils, but it did impose double duty on wool of the alpaca, and of sheep when "imported in any other than ordinary condition." Noils are the finest fibers, or fur, of wool-bearing animals, much more valuable than wool. Under the old law noils were subjected to single duty at the same rate as the wools from which they were taken, though the law, properly construed, required double duty. (Syn. Dec. Nov. 25, 1890, p. 628.)

The new law remedies the omission of the old and the effect of decisions made under it by imposing a duty of 30 cents per pound on all noils. The Boston *Journal of Commerce*, an able and rather candid free-wool paper, in its issue of Jan. 9, says the Board of General Appraisers has decided that alpaca noils, evidently imported to test the question, are dutiable only at 12 cents, overruling the assessment of 30 cents by the customs officers. The *Journal of Commerce* candidly says: "The decision has been a surprise to the trade." It is not the only decision that has been a surprise to all but importers and those who made the decisions.

I have requested the Secretary of the Treasury to take the necessary steps to test the question in the Courts. If permitted to stand it will be ruinous to the wool industry. It is in clear violation of law, alike reprehensible, unjust, and iniquitous. The time has come when wool-growers should ask for the reorganization of the Board.

ANOTHER ATTEMPTED FRAUD.

V. The Board of General Appraisers has properly held that when Canadian sheep-pelts with wool on are washed in cold water the pulled wool so washed is subject to treble duty, 33 cents.

The law expressly says "wool washed in any other manner than on the sheep's back shall be considered as scoured wool." I know this was intended to prevent the wool-growers of Canada and other countries from dumping into the United States the wool on the pelts of all the sheep in the world, cleansed by washing much better than practicable with cold water on the sheep's back. Yet Mr. O. L. Spaulding, Acting Secretary of the Treasury, on June 20, 1891, advised the Collector at Suspension Bridge, New York, that such wool "should be classed as washed wool," dutiable only at single duty. In this he advised against the plain letter and purpose of the law, in the interest of alien wool-growers, and against our own citizens.

THE MODE OF FIXING VALUE OF WOOL.

VI. In one respect the mode adopted of fixing the dutiable value of third-class wools is prejudicial to wool-growers, and not in accordance with the spirit of the law. Where wool is bought in foreign countries with paper currency the market value of the paper in which foreign invoices are made is estimated on the basis of the relative value of the American gold dollar. If fixed on the basis of the American silver dollar the dutiable value would be increased more than 30 per cent. This practice has been so long continued that it probably cannot be changed. (*Wool Manufacturers' Bulletin*, December, 1891, p. 406.)

These are some, and only some, of the incipient efforts to evade the law, and I regret to say in no instance have the leading members of the National Wool Manufacturing Association given any aid or influence to prevent them, except those directly affecting manufactured goods.

I call attention to these frauds for two reasons: First, to show the necessity for continued vigilance on the part of wool-growers; and, second, to show the necessity for a law that will provide an officer thoroughly learned in the law, and an expert in all that relates to wool, whose sole business it shall be to visit the Custom-houses, co-operate with the Treasury Department, represent the Government before the General Appraisers, and manage cases in courts growing out of the wool and woolen-goods tariff. The District Attorneys of the United States are not generally sufficiently expert on these subjects, and hence importers and manufacturers, assisted by the ablest attorneys and experts, both at the Custom-house, at the Treasury Department, and in the courts, too often secure an unjust advantage. Wool-growers are without any similar aid, representation, or agency. Even Attorney-General Garland, on Jan. 15, 1887, gave an erroneous opinion that the act of 1883 imposed no duty on any goat wool, except that of the "alpaca goat," though there is no such animal! The alpaca, otherwise called llama, is a wool-bearing animal of the camel genus, and not a goat at all. (Synopsis Decisions, 1891, No. 1,072, Gen. App., p. 280.)

MERINO WOOLS.

The act of 1883 imposed a duty of 10 cents per pound on unwashed wools of the first class of the foreign value of 30 cents or less, and 12 cents on all of greater value, with double duty on washed and treble on scoured. The new law makes a uniform duty of 11 cents. On most imports this is an increase of one cent; on a limited portion, the best grade, it is a decrease of one cent.

The report of the President and Secretary of the National Wool Manufacturers' Association, Oct. 1, 1890, says of the law: "The average duty paid will be considerably lower than under the law of 1867. For the years 1868, 1869, 1870, the duty averaged each year about 12½ cents per pound. In 1889, under the act of 1883, the duty averaged 10 1.100 cents." (Bulletin, December, 1890, p. 366.) And the report admits the advantage gained by manufacturers "by reason of the obliteration of the 'dividing line' at 30 cents." The duty is not what the wool-growers desired, not what they sought to gain, but it is all that could be secured. It is a slight improvement in degree of protection on the prior law. Something is gained by the definition of unwashed wools in the new law.

PROTECTIVE WOOL DUTIES BENEFICIAL.

Third. The new law has been beneficial by increasing wool protection. I have already referred to the benefits arising from increased duties on noils, shoddy, waste, and some goat wool, and from the "sorting clause." Other provisions of the law increase protection.

THE LONG WOOL.

The act of 1883 imposed a duty of 10 cents per pound on washed or unwashed wools—Leicester, Cotswold, Down wools, Canada long wools, Shropshire, etc.—of the foreign value of 30 cents or less per pound, and on all over that 12 cents, treble duty on scoured. The new duty is 12 cents, washed or unwashed, scoured treble. This is an increase on most of these classes of wools of 2 cents. The imports of this class are not large, but the duty should be enlarged to encourage the increase of our best mutton sheep.

CARPET WOOLS.

The worst feature of the new law is its inadequate ad valorem duties on third-class or so-called carpet wools.

The act of 1883 imposed a duty of 2½ cents per pound on wools, washed and unwashed, of the foreign value of 12 cents or less, and 5 cents on all of greater value, treble on scoured. The law was so unjustly executed that wools practically scoured were admitted without increased duty. Of the imports of 1889 probably at least 25,000,000 pounds were used in the manufacture of clothing goods, thus supplanting an equal amount of merino and of our common wools. This was a grievance so gross that manufacturers generally admitted it.

In October, 1888, a bill passed the Senate fixing the duty at 4 and 8 cents, with a dividing line at 12 cents, but the House of Representatives, with a majority opposed to protection, did not pass it. When the new law was in process of construction in 1890 the importers and manufacturers resisted a similar rate desired by wool-growers, and the bill as introduced and agreed to, or at least accepted by representatives of manufacturers and wool-growers, was 3½ cents and 8 cents, with a dividing line at 12 cents.

Some of the carpet manufacturers succeeded in defeating this, and the law as passed prescribes duties of 32 per cent. ad valorem on wools of the foreign value of 13 cents, including charges up to and in the last place of export, with 50 per cent. on all of greater value.

The imports for 10 months ended Oct. 31, 1890 and 1891, were: 1890, 64,339,226 pounds; value, $7,556,225; average value per pound, 11.74 cents; average ad valorem duty per pound 2.50 cents. 1891, 75,601,651 pounds; value, $7,621,987; average value per pound, 10.08 cents; average ad valorem duty per pound 3.225 cents.

The official published statistics do not yet show how much of this was of the foreign value of over 13 cents, but it is reported for the year ending October, 1891, at about 104,000 pounds. The average duty on all was 3.225 cents per pound. On a small portion the duty was less than 2 cents. In the *Boston Home Market Bulletin* of November, 1891, Hon. A. W. Beard is reported as saying:

"I asked Mr. Lyman (Arthur E. Lyman, Treasurer of the Lowell Carpet Company, a well-known free trader) how much difference it would make in best Brussels carpets. He said less than 4 cents a yard. The Bigelow Carpet Company told me less than 3 cents. The Treasurer said that it would not be felt, realized, or known in the retail prices at all."

This refers to the whole duty on the best Brussels. On the cheaper grades and on the ingrains, with a very small amount of wool, a duty of 4 cents on carpet wools would not affect retail prices at all.

PROTECTION INSUFFICIENT.

The duty is not sufficiently protective. Carpets are entitled to less favor than clothing goods. With proper protection American wool-growers can and will produce all needed carpet wools. This is conclusively proven in a document presented by Hon. John Sherman, the able and faithful friend of adequate protection for the wool industry, in the Senate May 22, 1890, published as Senate Miscellaneous Document No. 149.

And in spite of all denials, a large part of all these so-called carpet wools is used in the manufacture of clothing goods, thus supplanting an equal amount of American merino and "common wool," and especially the wools grown in California, Oregon, the new States, and Territories. The use of this foreign coarse wool has even made coarse, hairy goods of various kinds fashionable.

The carpet manufacturer proper does not consume 60,000,000 pounds of the imported carpet wool. The American production of carpet wool, including "breech" and "belly" wool of the long-wool sheep, is all of 15,000,000 pounds.

MUTTON SHEEP.

Under the old law the duty on sheep other than free for breeding was 20 per cent.; under the new law on sheep less than one year old 75 cents; one year or more, $1.50. The imports for 10 months ended Oct. 31, 1890, were 238,618, valued at $699,378; the imports for 10 months ended Oct. 31, 1891, were 223,912, valued at $749,247.

Canada, Mexico, and the Argentine Republic can seriously interfere with our mutton production. The duty on sheep less than one year old should be made more protective. Substantially, all the sheep in Canada are of English blood; the long-wool sheep excellent for mutton. Lambs at from six to 12 months old will sell in New York market at from $3 to $6 and even as high as $8 each. The duty on lambs is not equal to 15 per cent. ad valorem—utterly insufficient.

BETTER PROTECTION.

Wool-growers should at the first practicable moment demand, gradually, annually, increasing duties on all classes of wool, just as our increasing flocks can supply increasing demand, with a view to the speedy exclusion of all foreign wools. Then and not till then will the great Republic be independent in peace and in war.

SHERMAN'S WOOL PROTECTION.

The wool tariff provisions introduced in the Senate May 22, 1890, by our distinguished Senator, John Sherman, should be the basis of the increased protection, and this demand is justified as essential to the success and prosperity of every branch of our agricultural industries.

The discussion of this question would be omitted but for two reasons: The annual report of October, 1890, of the National Association of Wool Manufacturers avows a purpose to seek a reduction of wool duties, and it has been announced that the policy of the dominant party in the House of Representatives will be not to attack the new law as a whole, but by special bills, in detail, and separately, commencing with wool, lumber, salt, etc. The election of Crisp as Speaker turned on this policy, as in opposition to Mills, who favored general revision. And the strongest and fiercest assault is to begin on

wool duties. Gen. Draper, of the Home Market Club, has well said: "Protectionists must stand together or fall separately. If we have free wool there is no logical argument against free woolen." (*Home Market Bulletin, November*, 1891.) "Wool protection is the keystone of the protective arch." (*Home Market Bulletin, November*, 1891.)

ADEQUATE PROTECTION FOR WOOL-GROWERS WILL PROTECT.

It is a remarkable fact that there are many wool-growers, some even in Ohio, who have been led to believe that protection gives them no benefit. This will be my apology for presenting some evidence to show the fallacy of this belief. The evidence is found in reason and experience. And first reason: If wool-growers in Canada produce wool there, as they do, to sell in the United States, when they bring it here they must pay at our Custom-house 12 cents per pound duty on such wools as they generally sell—the long wools. If they sell at 30 cents to wool buyers here the Canada wool-grower realizes 18 cents per pound for his wool after paying the duty. The American wool-grower, producing the same kind of wool, sells his wool for 30 cents per pound and pays no duty. It does not require much intellect to discover that in such case the tariff is worth just 12 cents a pound to our wool-growers. So long as foreign wool is produced in Canada or Australia, or elsewhere, which can and will be sold here for less than the reasonable cost here, the American wool-grower has the advantage in price over the foreign wool-grower by precisely the amount of duty.

Under the "conditions" I have named, a tariff does give our wool-growers a better price than the foreigner can get if he sells here. And these are the existing conditions. In Australia merino wool can be, and is, produced at less cost than it can be in the United States, because (1) pasturage can be had there for a few cents an acre, and (2) the climate there is such that substantially no Winter feeding is required. The same is true in South America. The Canada long wool is produced at less cost than in the United States because of cheaper labor and lands.

Thus by every principle of reason, all fair-minded men must agree that while these conditions exist, as they inevitably must, for a long time the American wool-grower is benefited in the price of his wool precisely to the extent of the duty per pound.

And this is found to be true in practice.

1. Let me illustrate by an example. A letter, dated Aug. 27, 1891, to me from Justice, Bateman & Co., eminent wool merchants of Philadelphia, says: "A Pennsylvania wool-grower wanted some Shropshire sheep. He knew of a flock that had been imported into Canada from England; the importer in Canada was unwilling to part with all of his young sheep, but where there were twins he divided the stock, letting the Pennsylvania wool-grower have one and he kept the other, so that they could both have the same blood. The Pennsylvanian sheared those lambs and sent us the wool, some of which sold at 30 cents per pound unwashed. The wool from the twins that remained in Canada sold there at 18 cents fleece washed. The Pennsylvania man, who is a Democrat, told us that as a rule he was a free trader, but he believed in the McKinley bill with its duty on wool, and explained that the above circumstance had convinced him."

2. The report of the Secretary of Agriculture for 1889, page 246, gives the imports of the three classes of wools, clothing, combing and carpet wools, for the years 1867 to 1889 inclusive. The report then says: "The merino class (clothing wool) takes the place of the wool of the higher cost, that averaged 24.4 cents for the first period (of thirteen years, 1867–1879) and 21.5 for the second (1880–1889), and this is the wool which (to the largest extent) competes directly with the product of this country. The third-class (carpet wool) averaged 14.8 cents for the first period and 12.2 for the second."

These were the importers' prices, without the duty added. The United States Treasury Department Wool Report of 1887, pages 109 and 228, gives the average prices for similar wools from 1824 to 1886, and without quoting the figures it is sufficient to say the American wool-grower received substantially the foreign price plus the duty.

3. American wool-growers are now receiving for their wools nearly, not quite the foreign price plus the tariff duty. This is shown by quoting or comparing prices at London sales and prices in Boston or Philadelphia.

In illustration of this I will now present and will append to my remarks a table prepared with great care by an eminent expert, Theodore Justice, which demonstrates this fact. It is proper to say the duty on unwashed Australian wool is by law 11 cents per pound, but as the law permits it to come in "skirted" and in its light condition, the duty is in fact only equivalent to about 8 cents per pound on the basis of our American unwashed merino. The duty is too low, and every farmer should insist on an increase as proposed by Senator Sherman in the Senate May 22, 1890.

WE MUST HAVE ADEQUATE PROTECTION OR ACCEPT DESTRUCTION.

Without protection our wool industry would soon be destroyed. This is practically admitted on page 46 of the Wool Report of 1887 by the Democratic Chief of the Bureau of Statistics, who there says: "It is idle to talk of rising sheep in Europe or this country to compete with South Africa, the Platte country, or Australia." With our industry destroyed, foreign wool-growers would have a monopoly, will organize trusts and put up the price of wool higher than it would be under a tariff. The wool product of South Russia is controlled by four men. That of Australia by a few men with immense flocks, and so in Buenos Ayers.

WHY IS WOOL SO LOW IN PRICE?

Wool-growers naturally ask, if "protection protects," why is wool so low in price? Among the reasons are these: First, the mildness of the past two Winters has lessened the usual demand for woolen goods; second, importers, in anticipation of the passage of the McKinley bill, imported largely both wool and woolen goods, thereby depressing prices thus far under the operation of the new law; third, a more efficient cause even than these has been and is in operation—the increase in the number of sheep and wool product in foreign countries now in excess of the world's demand.

This is shown by comparing the statistics of production in 1870 and 1890 in the principal wool-growing countries, as follows:

Countries.	Year.	Production, pounds.
Australia	1870	179,459,780
Australia	1890	400,879,240
Argentine Republic	1870	106,987,500
Argentine Republic	1890	295,425,200
United States	1870	154,500,680
United States	1890	271,342,200
Asia	1870	134,507,120
Asia	1890	264,860,050
Africa	1870	45,968,880
Africa	1890	55,185,780

This increase has reduced the world's prices, but, in addition to this, the wool-growers of Australia, or the wool exporters, like the Bradford wool manufacturers, have entered into a conspiracy to sell their wool for less than a fair price to make American wool-growers believe the tariff does not protect.

The wool circular of Justice, Bateman & Co. for July, 1891, on the authority of the Melbourne *Argus*, a reliable Australian newspaper, says: "The average price [of wool] per bale for the season just closed [at Sydney, New South Wales, a principal market] was £11 8s. 2d., as against £14 19s. 4d. for the previous clip, thus showing a decline of £3 11s. 2d. per bale from the price paid to Australian wool-growers during the previous season, a decline of 23.77 per cent." (See *American Economist* Nov. 6 and 13, 1891; Bulletin Wool Manufacturers' Association December, 1891, page 391.) There is but one remedy: Shut out the foreign flood, save our wool-growers from the deluge; let foreigners take care of themselves. "He that provideth not for his own household is worse than an infidel"—he is a free trader in favor of Springer's free-wool scheme, hostile to American wool-growers, useful only to aliens.

FREE WOOL NO BENEFIT TO MANUFACTURERS.

The Bradford fraud proves that without adequate protection worsted manufactures cannot be maintained in the United States.

The *Bulletin of the National Association of Wool Manufacturers* for December, 1891, referring to this fraud, says: "Free wool would not materially alter the status of this question. The difference between the prices at which the goods are now sold and the cost of making them in this country still remains so great that competition with free wool would be as impossible as it is without free wool." This proves what I asserted in an address to the Commercial Club at Providence on Feb. 15, 1890, that "free wool offers no lasting benefit to the manufacturer, and will impoverish the farmers."

A FALLACY EXPOSED.

In this connection it may be well to expose the fallacy that "our wool tariff has depressed" the prices of the wool of the world to the advantage of foreign manufacturers. Prices can only be reduced by over-production or diminished demand. The world's demand for wools cannot be materially affected by tariffs, for it exists from necessity. The American demand even for wools, not only domestic, but foreign, has been increased by our tariff, by the increase of manufacturing machinery in operation. With "full and adequate protection for the wool industry" the American demand would be supplied by American wool-growers. Then demand in other countries would be supplied in other countries, and when the supply exceeded the demand production would necessarily be reduced.

Under adequate wool protection our wool supply would simply be furnished by our own citizens, rather than by foreigners. We would have no concern as to foreign demand, production, or prices until our capacity to produce wool and woolen goods should exceed our own demand, and this is in the far distant future.

WOOL-GROWERS SHOULD HAVE THE WHOLE AMERICAN MARKET.

The complete success of the wool industry requires this. If any part be surrendered to foreigners it is a surrender of American independence, of so much of our interests, sources of profit and wealth.

NO NEED OF FOREIGN WOOLS.

American wool-growers can, and under proper conditions will, supply all needed wools. No properly-informed man denies their ability to supply all needed merino and long wool—wools of the first and second class. No foreign wool is "needed to mix" with ours in the manufacture of woolen goods. The claim has been made that Australian wools are needed for this purpose, but it is denied by the able Secretary of the Department of Agriculture, and one of the most intelligent, honest, and able of the great wool manufacturers, Charles Fletcher, of the Providence worsted mill, in a letter Feb. 18, 1890, said: "The talk of 'mixing' Australian wool to make goods required for this market is all nonsense, as Australian wools are only used largely here when they are cheaper than domestic wools." The American Consul at Sydney, New South Wales, G. W. Griffin, in his report to the Department of State, March 23, 1891, says: "The samples of American wools, and *especially those grown in the State of Ohio*, sent to the Melbourne International Exposition, were admitted by experts to be far superior to anything of the kind ever grown in these Colonies." (Consul Reports No. 128, May, 1891, p. 112.)

Much other testimony might be added and to the same effect. It is claimed that American wool-growers will not find it profitable to raise so-called carpet wools. This again is a fallacy. This country needs 25,000,000 sheep of the best mutton variety—the Downs, Shropshires, Lincolns, etc.—producing an average of seven pounds of wool per head, or in all 175,000,000 pounds unwashed. More than one-tenth of this consists of "hiplocks" and "breech" wool, 17,500,000 pounds, so coarse and heavy as to be fit only for carpets, and it is in this wool that Ohio is directly interested in preserving to the wool-growers of this country the whole of the so-called carpet-wool production. If imports are permitted they will be used for the manufacture of clothing goods, and the better portions to mix with merino and the long wool for the same purpose. It is better to mix American third-class wool rather than foreign. Capt. A. E. Shepard, formerly President of the Texas Wool-Growers' Association, has testified before the Committee of Ways and Means in Congress that Texas alone can produce all the third-class wool, and, under proper conditions, will do so. The able statistician of the Department of Agriculture, Prof. J. R. Dodge, in his monthly report for June, 1890, said: "So-called carpet

wools, worth from eight to 28 cents per pound, used for the coarsest carpets and for the finest fabrics, have been imported at a discrimination (low duty) utterly trivial and ineffectual."

PROTECTION FOR COTTON — SOUTHERN ALLIES.

I deem it important to notice one other fiber for protection. The Boston *Journal of Commerce* of Dec. 12, 1891, quotes from advance sheets of A. B. Shepperson's "Cotton Facts" for the year the following:

"Rough Peruvian cotton has a strong, rough, wooly, crinkly staple about one and three-eighths to one and one-half inches long. It is of the tree variety. It is called "vegetable wool," and when carded its resemblance is so close and its characteristics so strikingly similar to wool that it could be readily sold as wool to a dealer. When woven into goods along with wool the cotton fibers cannot be determined with any certainty except by using chemical tests. This cotton is sold exclusively to manufacturers of woolen goods for the purpose of mixing with wool. It is all used by manufacturers of woolen goods, underwear, and hosiery, who doubtless put it where it will do the most or least good, depending upon whether the matter is viewed from the manufacturer's or the wearer's standpoint."

"The crop of rough Peruvian cotton varies from 15,000 bales to 50,000 bales, and the greater part of it goes to Great Britain. It is put in bales of about 180 pounds. The imports into the United States for the calendar years Jan. 1 to Dec. 31 since 1885 have been as follows: 1885, 14 bales; 1886, 843 bales; 1887, 2,473 bales; 1888, 4,279 bales; 1889 7,650 bales; 1890, 9,500 bales; 1891, 12,500 bales, estimated. If the framers of our last tariff had known of the peculiar quality of this cotton, it would doubtless have been subjected to a good round duty in the interest of the wool-growers of the United States."

The imports of Egyptian cotton for the year ended Aug. 1, 1891, were 23,790 bales. Previous to this publication of Mr. Shepperson it had been announced that Mr. Elliott, a member of the popular branch of Congress from South Carolina, would introduce a bill in that body, imposing a duty on the importation of cotton. I addressed a communication to the Charleston *News and Courier*, one of the most influential Democratic papers in the country, in favor of the proposed measure, in which I said:

"The imports of raw cotton for the fiscal year ended June 30, 1891, were of the Custom-house value of $2,825,004 (nearly 21,000,000 pounds). Just to the extents to which our manufacturers use foreign cotton, just to that extent do American cotton-growers lose a home market. The price paid for foreign cotton goes into the pockets of foreign growers, instead of those of our own citizens."

"If it is wise to import part, it is equally wise to encourage foreign production and import all." (See *Home Market Bulletin*, January, 1892, page 7.)

That influential journal—the Charleston paper—though "opposed on principle to the doctrine of protection," was pleased to say editorially that my article was support "from a most unexpected quarter for the proposed act of justice to the disheartened growers of fine American cotton, and we see no reason to doubt if they will take steps to urge the proposed bill on the attention of Congress, the Secretary of Agriculture and the President, they can place their industry on the same footing with the wool and tobacco industries at an early date." And I feel warranted in saying that while the general policy of protection shall be maintained, there is no reason why it will not "be equally just" to give protection "for the benefit of the cotton-growers of the South."

Protection, like patriotism, should be as comprehensive as the Republic, uniting in fraternal bonds all American citizens and denying even the existence of sections. I most earnestly recommend that the association will invite the co-operation of the people of the United Republic in securing "full and adequate protection" for the wool and cotton industries. And now, in conclusion, I invite an expression of opinion on the recommendations I have made. I appeal to the farmers and wool-growers of Ohio and of the whole country to multiply, enlarge and maintain wool-growers' associations; to demand legislation which will secure to American wool-growers the whole American market for wool and mutton; that they will multiply and enlarge their flocks of sheep to supply all needed wools; that they will make their influence felt in nominating conventions, at the ballot-box, in the enactment and execution of laws, and in asserting the necessity and dignity of the wool industry as essential to the health, happiness and prosperity of all who dwell within the borders of the Republic, and equally requisite to the safety, power, independence, success and glory of all our institutions.

The following officers were elected for the coming year: President, William Lawrence, of Bellefontaine; Vice-President, Calvin Caswell, of Castalia; Treasurer, A. H. Kling, of Marion; Secretary, W. N. Cowden, of Quaker City. Executive Committee, M. H. Rhodes, of Cochranton; J. B. Pumphrey, of Versailles; John Pow, of Salem.

The following resolutions were adopted:

Resolved, That this Association condemn the monstrous and ruinous proposition made by Members of the House of Representatives at Washington to place wool on the free list. Free wool, whether under cover of reciprocity treaties or by any means, is hostile to all our agricultural industries, and should be condemned by every farmer at the ballot-box and in every other practicable method.

Resolved, That while the general policy of a protective tariff is maintained we demand such improved protection for the wool industry and on the importation of mutton sheep, and of raw cotton, as will, within the near future, give to American farmers the privilege of supplying all wool and mutton and cotton used in the United States, and we recommend to the farmers of the United States such increase in sheep as will enable them to accomplish this desirable object as to wool and mutton.

Resolved, That we appeal to the President of the United States to see that the laws now in force for the promotion of the wool industry be faithfully enforced, and that all officers found wanting in capacity or the performance of duty shall be speedily removed. We declare our purpose to demand legislation as fully beneficial to wool-growers as to the most favored of the manufacturing industries. Whenever free wool or inadequate protection for the wool industry shall come we will demand free woolen goods as a part of the same policy, and wool-growers are earnestly urged to oppose the nomination of any citizen for any political office who does not indorse the purpose of this resolution.

Resolved, That we ask Congress to provide an officer in the Department of Justice whose duty it should be to aid in the enforcement of the law relating to imports of sheep, wool, and other fibers, as well by inspecting the action of customs officers as by argument before the Board of General Appraisers in the Treasury Department and in the courts.

Resolved, That we recommend the establishment of a weekly newspaper in Washington devoted to political and other interests of wool-growers, and we urge all wool-growers to sustain and support it.

Resolved, That the Vice-President of the National Association of Wool-Growers is requested to call a meeting of the Association in the Statehouse at St. Paul on June 6, 1892, to perfect its organization, and more effectually to promote and secure the object of the Association.

Resolved, That the Secretary of this Association is directed to cause the names of the officers of this Association to be published in the directory now being prepared by W. W. Burch, of the *American Sheep-Breeder and Wool-Grower*, 170 Madison street, Chicago.

Resolved, That this Association respectfully requests the President of the United States to reorganize the Board of General Appraisers under the customs laws, with a view to secure their administration more effectually in the spirit and purpose for which they were enacted.

Resolved, That the Secretary of this Association be instructed to furnish the President of the United States, the Secretary of the Treasury, and Members of Congress from Ohio with copies of these resolutions.

CHINESE WOOLS.

In a memorial dated June 1, 1891, Hon. Columbus Delano and Wm. Lawrence asked the Secretary of the Treasury and the Commission on Custom-house Wool Samples to classify Chinese wools as first-class wools. They are being improperly imported as third-class. The imports for specified years ended Oct. 31, were as follows:

1888	5,026,020
1889	9,304,657
1890	13,389,936

The Boston *Wool Reporter*, Jan. 14, 1892, says:

"The rapid increase in importation of China wools is largely due to the opening up of new territory in that Empire. The extension of railroads is making their wool-growing section accessible—supposed to be immense."

TABLE SHOWING THE PRICES WOOL-GROWERS WOULD HAVE RECEIVED IN OCTOBER, 1891, WITH FREE WOOL.

GRADES OF AMERICAN WOOL.	Average market price in Philadelphia Oct., 1891.	Per cent. of Shrinkage.	Scoured Cost.	Free trade prices in America of competing foreign grades.	Decline in America necessary to reach the level of foreign prices.	FOREIGN WOOLS WHICH COMPETE WITH WOOL GROWN IN THE UNITED STATES.	Foreign price (in cents) October, 1891.	Per cent. of Shrinkage.	Foreign scoured cost. (in cents) October, 1891.	Existing difference between American and foreign scoured wool October, 1891.
WASHED COMBING.										
Ohio and Pa. Fine delaine X, XX, and above	35½	50	71	24	11½	Australian	23	53	49	22
" " Medium combing, ⅜ to ½ blood	29	40	65	30	9	" Cross-bred	29	40	48	17
" " ½ blood combing	34½	23	45	23	11½	Irish Super Hogs	22	16	26	19
" " Braid	33¼	20	40	23	10½	" Wethers	21	17	25	15
Canada combing	33½	17	40	21	12½	Canada combing	20	17	29	11
WASHED CLOTHING.										
Ohio and Pa. XX and above, choice	32	51	65	16½	15½	Montevideo Primo	15½	58	37	28
" " XX and above, average	30¼	58	64	16½	13¾	" "	15½	58	37	27
" " X	30½	50	61	16½	14	" Secundo	15½	56	35	25
" " Medium, ⅜ to ½ blood	36½	40	60	30	6¼	Australian cross-bred	29	40	48	12
" " Coarse, ¼ blood	33½	23	44	23	10½	Irish Super Hogs	22	16	26	18
Michigan and New York Fine delaine	33½	53	72	16½	17½	Montevideo Primo	15½	58	37	25
" " X and above	27½	53	59	16½	11½	" "	15½	58	37	22
" " Medium, ⅜ to ½ blood	35½	40	60	30	5½	Australian cross-bred	29	40	48	12
" " Coarse, ¼ blood	33½	22	43	23	10½	Irish Super Hogs	22	16	26	17
Choice tub-washed	36½	14	42	22½	14	Down Tegs	21½	22	28	14
Average tub-washed	34½	17	41	22½	12	" "	21½	22	28	13
UNWASHED COMBING.										
Fine unwashed delaine, X, XX, and above	22	65	63	24	.....	Australian	23	53	49	14
Medium unwashed combing, ⅜ to ½ blood	28½	52	59	30	.....	" Cross-bred	29	40	48	11
Coarse unwashed combing, ¼ blood	26½	44	47	23	3½	Irish Super Hogs	22	16	26	21
Braid unwashed combing	22½	43	40	23	½	" Wethers	21	17	25	15
UNWASHED CLOTHING.										
Fine unmerchantable, XX and above Ohio	23½	63	63	16½	7	Montevideo Primo	15½	58	37	25
Fine unmerchantable, X and above Michigan	22½	65	64	16½	6	" "	15½	58	37	27
Fine unwashed clothing, XX and above choice	21½	64	60	16½	5	" "	15½	58	37	23
Fine unwashed X and above average	20¼	65	58	16½	3¾	" "	15½	58	37	21
Medium unwashed clothing, ⅜ to ½ blood, choice	27½	52	57	30	.....	Australian cross-bred	29	40	48	9
Medium unwashed clothing, ⅜ to ½ blood, average	26½	54	55	30	.....	" " "	29	40	48	7
Coarse unwashed clothing, ¼ blood, choice	25½	42	43	23	2¾	Irish Super Hogs	22	16	26	17
Coarse unwashed clothing, ¼ blood, average	24½	44	44	23	1½	" " "	22	16	26	18
Common and burry unwashed	19¼	50	40	23	.....	" " "	22	16	26	14.

In this table Australian skirted wool is compared with American unskirted. The duty of 11 cents on skirted is less than this sum applied to American unskirted. The Australian skirted will yield 52 per cent. of scoured wool.

THE MARKETS.

WOOL.

BOSTON, March 1.—There has been a good demand for domestic fleeces, especially for Territory, California, and Oregon wools. These sales have been made in all cases at slightly lower prices. The attendance of buyers has been large and the dress-goods mills have been free buyers; the cassimere men were plenty and made good purchases. The market is in the buyers' favor and round lo s can be sold only at concessions. Holders are still asking full current r.tes for all choice lots, but these are in small supply and few sales are made. The supply of all kinds, with the exception of Texas and Valley Oregon, is large. Buyers are as cautious as ever and are taking lots only when wanted at the mills. The mills are not very heavily supplied, and any increase in the demand for goods sends the buyer to the market for the raw material. There is no speculation in regard to the future of the market, as the holders only care for the present.

There has been a good demand for Ohio and Pennsylvania fleeces, and large lots have sold in all cases at a decline of about 1c ₱ ℔ in the grease. The outside price for XX is 29c, with X at 27½@28c and No. 1 at 35c; No. 2 wools are quoted at 33c. The price asked in Ohio for X lots is 28c, but there are very few buyers that will pay that figure. No. 1 and No. 2 wools have sold fairly well at quotations. There has been a better movement in Michigan X fleeces, no sa es being ma e over 26½c, the range being from 26 to 26½c. These wools will not sell scoured at over 30c, and it is hard work to get even that figure, except for very choice lots. No. 1 Michigan wools have sold quietly at 32@34c. Dealers in some cases are asking as high as 35c for these wools, but no sales are reported above 34c. The supply of these wools in the interior is not large. Combing and delaine fleeces are steady and no material change is reported in prices. Trade is fair at 37@38c for No. 1 Ohio combing and 36c for No. 1 Michigan. Delaines are a little more active at 34@35c for fine Ohio and about 31c for Michigan lots. On a scoured basis Michigan lots are worth bout 64c. The movement in unwashed combings is very quiet and sales have been very light. Prices are a little easier for three-eighths bloods at 27c. Some lots are held at 28c, but no lots have moved at this figure. Quarter bloods are firm and steady, and sell at 25@26c. These wools are a little more active than three-eighths bloods. All good lots bring outside prices readily.

Territory wools have been very active and heavy sales have been made to the dress-goods mills. Round lots of Utah and Wyoming wools have sold at an average scoured price of 55c for fine and fine medium grades. Most of the sales in the grease have been made at 17@18c. Prices are about 1c lower than they were at the first of the year. Low Colorado and similar wools are dull and are moved only at easy figures. Choice fine-warped wools of all kinds are in limited supply and bring full values. The scoured prices are as follows: Montana fine, 58@60c; fine medium, 55@57c; medium, 52@54c; Utah and Wyoming fine, 56@58c; fine medium, 53@55c; medium, 52@55c. Texas wools are in small supply and are firmly held. Trade is quiet. Scoured prices for choice lots follow: Fine Northern 12 months' growth, 58@60c; 8 months' growth, 55@57c; medium year's growth, 53@55c; six to eight months' growth, 50@53c; fine Fall, 50@52c; medium Fall, 45@48c. Most of the sales of fine Fall were made at 52c. California wools are firm and are having a good sale, especially Fall lots. Sales of Spring wool have been mostly free eight months, on a scoured basis of 56c. New wool is not expected until the 1st of May, as rains have delayed the shearing. The scoured values are as follows: Northern free, 12 months, 58@60c; eight months, 56@58c. Southern free, 12 months, 56@57c, six to eight months, 50@53c; free Fall, 45@50c; defective, 35@40c. Outside of one large sale of Eastern Oregon, the demand for these wools has not been very active. In the grease about 17c is obtained. No. 1 Eastern scoured sells at 56@58c, with No. 2 at 54@56c. Valley wools are limited, supply and prices are nominal at 54@56c for No. 1 and 50@51c for No. 2 lots. Unwashed and unmerchantable fleeces are quiet and steady at old prices.

Pull wools are having a good, fair demand at easy prices. Choice supers are not selling over 42c, and only choice lots are bringing that price. Maine supers are nominal at 45c. A supers have had a good sale on a basis of 52c, with lambs' selling at 50c. Fine A's have a fair demand at 58@60c for choice lots. B supers are steady at 43c, with fine combings at 53@55c, scoured. Western supers are quoted at 40@45c, and Western extras at 53@56c.

Sales of 63,000 ℔ of tags, odds and ends, were made at prices ranging from 15 to 34c.

There has been a very active demand for Australian wools and more large sales have been made for future delivery. The demand for cheap Queenstown wool is better. The market is a buyer's one. The best combing wools are quoted 78@80; clean but good wools can be obtained at 72@75c. Clothing wools have sold as low as 63c, the outside price being about 70c. Carpet wools are now active at steady prices.

Quotations follow:

Ohio and Pennsylvania Fleeces—No. 1 fleece, 34@35c; X and above, 27½@28; XX and above, 28½@29c.

Michigan, Wisconsin, etc.—Michigan X 26@26½c; Michigan No. 1, 32@34c; New York, New Hampshire, and Vermont X, 26c; New York and New Hampshire No. 1, 32c.

Combing—Kentucky ¼-blood, 27@28c; Kentucky ½-blood, 25@26; Indiana and Missouri ¼-blood, 24@26c; Indiana and Missouri ½-blood, 26@27; No. 1 Ohio, 37@38c; No. 2 Ohio, 32@33c; No. 1 Michigan, 33c; No. 2 Michigan, 31@32c.

Delaine Wools—Ohio, 34@35c; Michigan fine, 31@32c.

Territory Wools—Montana fine, 15@17c; Montana fine medium, 18@20c; Montana No. 2 medium, 21@23c; Wyoming, Utah, and Colorado fine, 13@15c; Wyoming, Utah, and Colorado fine medium, 16@18c; Wyoming, Utah, and Colorado No. 2 medium, 20@22c.

Southern Clothing Wools—Georgia, 26c; Kentucky, ¾-blood clothing, 24@25c; Kentucky, ½-blood clothing, 20@27c

Texas and Southern Wools—Texas Spring medium (12 months), 21@22c; Texas Spring fine, 18@20c; Texas Spring medium (6 to 8 months), 17@19c; Texas Spring medium (6 to 8 months), 19@21c; Texas Fall, 17@21c.

Kansas and Nebraska Wools—Fine, 14@18c; medium, 20@21c; carpet, 13@14c.

Unwashed and Unmerchantable Wools—Michigan and Ohio fine unwashed, 18@20c; Ohio and Pennsylvania unmerchantable, 22@23c; Michigan unmerchantable, 20@21c.

California Wools—Spring Northern, 21@22c; middle County Spring, 17@19c; Southern defective, 14@17c; free Northern Fall, 17@20c: Southern do, 12@15; defective, 9@11c.

Oregon Wools—Eastern, fair, 16@18c; choice, 19@20c; valley, 21@25c.

Montevideo Wools, nominal, 27½@29c, fair to choice.

Cape Wools, 26@28½c, as to quality.

Carpet Wools—Aleppo, 14c; Angora, 14@14½c: Assyrian, 13@13½c; Cordova, 16½c; Donskoi Autumns, 19c; combings, 26@27c; carding, nominal, 22@24c; yellow, nominal, 21@23c; gray, nominal, 16@17c; black, nominal, 15@16c; greasy, 12½@13½c; East India Vicanere, nominal, 31@32c; Candahar, nominal, 28@30c; Joria, nominal, 31@33c; Bagdad, white, nominal, 26c; do, colored, nominal, 21@23c.

NEW YORK, TUESDAY, March 1, 1892.

COTTON—Was again moderately active and quite variable, advancing early as much as about 5@7 points on somewhat firmer cables, and diminished port deliveries, but weakened through the later trading under realizing orders, in good part from local sources, and left off easy, and in instances down for the day 1 point.——Aggregate of sales and exchanges here to-day, 75,500 bales.——March deliveries closed here at 6.76@6.77c (range 6.76@6.83c, on sales of 5,500 bales); April at 6.84@6.85c (range 6.84@6.91c, on sales of 11,500 bales); May at 6.95@6.96c (range 6.95@7.02c, on sales of 19,500 bales); June at 7.05@7.06c (range 7.06@7.12c, on sales of 13,200 bales); July at 7.16@7.17c (range 7.17@7.22c on sales of 4,300 bales); August at 7.26@7.27c (range 7.26@7.32c, on sales of 17,100 bales), and September to December within the range of 7.36@7.68c. Middling cotton stood at the close at 7 1-16@7 7-16c ₱ ℔.

FLOUR AND MEAL—An extremely tame market—Feed was held firmly, but in less demand, with 40 to 80 ℔ at 87½@95c, selling mostly at 90@95c.——Buckwheat held to full prices and wanted for export, ranging from 56@60c, in all forms (three boatloads, afloat, reported placed afloat for shipment at 95c, and 20,000 bushes Canada at 60c.——Rye was also in request for export and quoted firm, ranging on car lots from track to boatloads afloat, and free on board, afloat, at 97@1.01; odd car lots sold, delivered, at 97@97½c, and bids were out on importing lines, free on board, but negotiations made slow progress.——Malt quoted as before, on a lifeless market.——Barley ruled heavy, as in practical neglect, with State quoted within the range of 52@55c for two-rowed and 63@67c for six-rowed, and No. 2 Milwaukee at 65½@67c.

WHEAT.—On a fair speculative movement and through various, though not wide changes, hardened for the day in instances ¼@½c, but left off tamely and about steady.——Western markets irregular, though not materially altered. Contract deliveries here very moderate.——Liverpool cabled stock of wheat there as 300,000 to 320,000 quarters, against 330,000 to 340,000 quarters a month ago.——Interior deliveries since our last, 578,079 bushels, of which 479,118 bushels to Spring wheat points.——Contract wheat for March delivery stood at the regular close here at $1.03½ (range $1.02½@$1.03½, against $1.03½ last evening), April at $1.03½ (range $1.03½@1.04), May at $1.01½ (range $1.00 15-16@$1.01 11-16, against $1.01½ as the final quotation last evening), June at 99½c (range 99@99½c), and July at 97½c (range 97½@98c), and August at 95½c range 95½@95½c).——Aggregate of sales and exchanges here to-day given as 6,545,000 bushels, of which about 4,410,000 bushels for May.——Sales were reported here of 208,000 bushels, to arrive and here, within the range of 91c@$1.03½.——No. 2 red wheat, near by, afloat (about 34,000 bushels), sold to shippers at equal by the regular close to $1.03½@$1.03½, and do, free on board, from store about 80,000 bushels), at equal to about $1.05½@$1.05½ latest at 1.05½@$1.06, and free on board, afloat, at equal to $1.07½@$1.07½, and ungraded Spring and red wheat at 91c@$1.03½; No. 1 Northern Spring, prompt and near by, afloat (about 36,000 bushels), part at equal to $1.04½, and cost and freight form, forward shipment, on private terms; No. 2 Northern do (about 48,000 bushels), partly delivered, afloat, at 99@99½c, and about 44,000 bushels No 2 red and choice red, mainly the latter, to local and near-by millers on the quoted basis.

CORN—Was held more confidently, on an active speculative movement, and left off firmly, on a net rise for the day of ½@¾c. No. 2 corn for March, closed at 49½c (range 49@49½c) against 49c last evening; April at 50c (range 49½@50½c); May at 49½c (range 49½@49½c), against 49½c last evening; June at 48½c (range 48½@48½c), and July at 49½c (range 49@49½c).——Liverpool cables stock of corn there as 50,000 to 60,000 quarters against 70,000 to 80,000 quarters a month ago.——Imports of corn into United Kingdom last week reduced 70,000 quarters, or to 92,000 quarters.——Sales today reported here of 1,828,000 bushels, of which 1,575,000 bushels No. 2 corn for future delivery and 253,000 bushels prompt and special deliveries, of which about 173,000 bushels credited to shippers, in addition to further export commitals, via near-by ports, to a respectable extent, and mainly for Liverpool.——No. 2 corn, in elevator, sold at 49@49½c, chiefly at 49½@49½c, and delivered at 50½@50½c, chiefly at 50½c, and specials late in March at 50½@50½c, and free on board, afloat, at 51½c, and steamer mixed, in elevator, at 48½@49c, mainly at 48½c, and delivered at 49½@50c; No. 2 white, in elevator, at 52c; No. 3 corn, in elevator, at 48½@48½c, and afloat and delivered at 49@49½c, and ungraded mixed and yellow and white within the range of 48@52c, as to quality and condition.

OATS—Were a trifle easier, on a comparatively moderate movement (contract deliveries given as 40,000 bushels No. 2 oats).——No. 2 white oats, in elevator, sold at 38½c; do, March closed at 38c; do. clipped, quoted at 38½@38½c; No. 3 white oats, in elevator, at 37½c; No. 2 oats, in store and elevator, at 36@36½c; No. 2 oats, for March, closed at 36½c (range 36@36½c); May at 36½c (range 36½@37c); No. 3 oats at 35½@35½c, ungraded white at 37@41c, chiefly at 38½@40c (against 39@41c yesterday) and ungraded mixed at 35½@37½c.

HIDES—Were quite moderately sought after on the basis of previous quotations.

HOPS—Again ruled very quiet in private, though the advantage as to prices was with buyers, with State, new crop, fair to strictly choice, at 21½@25c.——At the Exchange, sales were reported of 350 bales State, medium, of which, for March, at 22½c, May at 23½@24c, and July at 24½c.

OIL CAKE.—Western oil cake, in bags, was dull and heavy and quoted down to $24.50 ₱ ton.

PROVISIONS.—Hog products met with less inquiry, but otherwise showed little change.——Exports from the United States Nov. 1, 1891, to Feb. 27, 1892, embraced 20,557,400 ℔ pork, 196,749,111 ℔ bacon, and 178,567,063 ℔ lard, against in same time in preceding crop year 24,065,000 ℔ pork, 220,918,810 ℔ bacon, and 181,087,165 ℔ lard.——Of Pork 300 bbls sold at previous prices, including new mess at $9.75@$10.50.——Stock here, 24,321 bbls (against 25,529 bbls a month ago, and 23,433 bbls a year ago).——Dressed hogs were in less demand, with city quoted at 6½@6½c, as to weights (pigs at 6 9-16@6½c).——Cutmeats were held steadily here, with pickled bellies, in bulk, at 6 5-16@6½c, and other kinds as before, on a moderately active call in the jobbing line.——Western steam lard was in request for prompt delivery, and closed at $6.77½, with March at $6.75, May at $6.86 bid, and July at $6.98 bid, and city steam lard $6.35. Refined lard, for Continent, at $6.90@7.15, and for South America at $7.70.——Beef hams quiet, and here offered at $14 and at the West at $13.——Butter and cheese quoted about as before, on a moderate movement.——Eggs were moderately sought after and left off easy, with best domestic fresh quoted at 16@17c.——Choice city tallow, in hogsheads, quoted at 4 11-16@4½c.——Oleomargarine Stearine offered at 6@6½c (10,000 ℔ out-of-town product sold at 6c).——Of cottonseed oil, 200 barrels prime yellow sold at 29c, and 100 barrels prime crude at 25½c, ruling steady, though market otherwise inactive.

TOBACCO—Was in fair request and held to firmness. Sales embraced 600 hhds Kentucky leaf within the range of 5@13c; 140 cases 1890 State Havana seed leaf at 13½@25c, 150 cases 1890 Pennsylvania Havana at 13½@37c, 150 cases 1890 Pennsylvania seed leaf at 12½@14½c, 250 cases 1890 Wisconsin Havana seed leef at 12@14c, 200 cases 1890 Dutch at 12@15c, 250 cases sundries at 6½@35c, 600 bales Havana at 70c@$1.15, and 250 cases Sumatra at $2.15@3.25.

Bunions.

These painful enlargements and deformities of the feet should be treated, in the first instance, by warm fomentations or poultices, continued till the skin over the bunion is thoroughly softened; a piece of lint saturated in extract of lead is then to be wrapped around the part, the lint being wetted with the extract as often as it dries. A square piece of thick buckskin, with the hole punched out of the middle large enough to allow the bunion to pass through and its surface spread with adhesive plaster, is then to be placed over the enlarged part, so that the pressure of the boot or shoe may be taken off the tender joint. By perseverance in this treatment when at home and taking care that the plaster is thick enough to receive the pressure of the boot, a cure can always be effected. In old standing cases, after softening the skin by poultices, caustic should be rubbed over the calosity, and, after a few days, when the black cuticle peels off, re-applied till the excitement caused by the caustic induces gradual absorption of the indurated matter.—*Hall's Journal of Health.*

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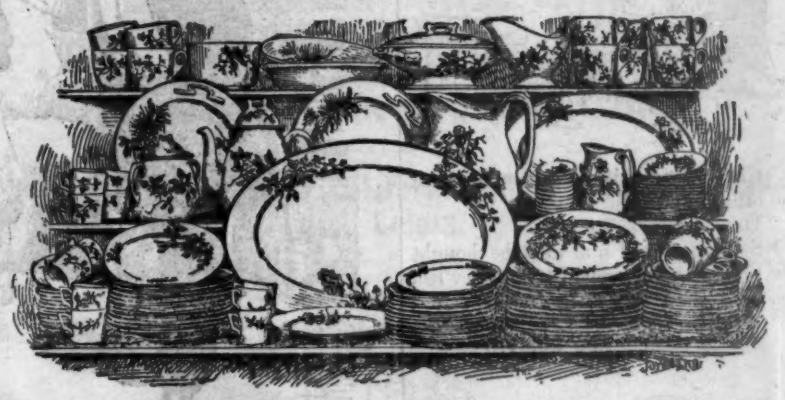

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